Boeing Plant 2
Seattle/Tukwila, Washington

Uplands Corrective Measures Study
Volume VIIIb: 2-31 Area

Data Gap Investigation Report

Part 2 of 2

Attachment H
Field Information

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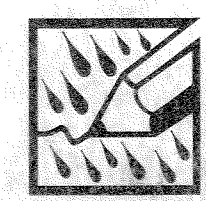
Boeing



"Rite in the Rain"®

ALL-WEATHER

FIELD

No. 351

2-31

8/09 – 9/09

"Rite in the Rain"®
ALL-WEATHER WRITING PAPER

Name Kristin Addis

295 NE Gilman Blvd Ste 201

Address Issaquah WA 98027

Environmental Partners Inc

Phone 425-358-0001

Project 2-31 CMS

Security
206 655-8800

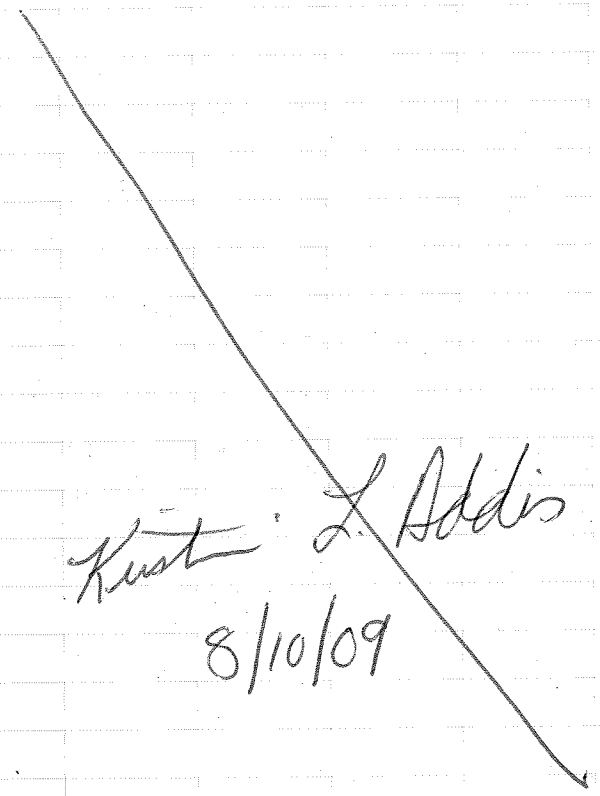
Open Gates
Hydrant use

Dispatch - Forklift
206-655-3266

CONTENTS

PAGE	REFERENCE	DATE
	2-31 Utility Locating	

8/10/09 2-31 Boeing Locates
All tickets entered
using ITIC
#'s
9192748 - East Marginal Way
9192761 - 16th Ave - South side
9192835 - 16th Ave - North side
All requests accepted.



8/12/09 2-31 Recon

0800 K. Addis onsite : D. Kunkel onsite
Jill + Ted - Golder
J. Parsons

DP-16 - okay to move inward near well
DP-48 - near electric utility bank
DP-24 - tunnel to the east can move north.
DP-25 - hand / limited access
DP-27 - hand
DP-04 - move to Burma Road
DP-26 - Hand - in hallway - 2 possible loc.
DP-28 - OK - easy access
DP-03 - locate alt. location in transportation
DP-31 - overhead location get alt location
DP-32 - move away from corner
DP-33 -
Ron L Gray 1520 Building - Stores Weekend
DP-6 - move out new door
DP-38 - Large foundation
DP-07 - move out past electrical
DP-40 - open door or move to trans aisle
DP12 Water overhead.
DP-8 - add PCB due to 2-10

8/12/09 Recon Meeting/Walk-thru
DP-09 - overhead - maybe move out
DP-11 - in trans corridor
move toward building
DP-39 - move outside door
C-level
DP-35 Block off
DP-29 - can move - shallow
DP-02 - looks good
DP-47 - storm
DP-15 -> Plumbing area
DP-30
End of Meeting
1030 Return to office
1100 At office
Continue to prepare for
2-31.

Kristin L. Addis
8/12/09

8/13/09 Utility locating
0900 K. Addis on-site. Meet with Joe (Boeing)
0905 Mark Dalan (APS) onsite
Discuss where we will be locating. Discuss Health & Safety issues
0930 Begin locating at DP-19
Front section has many areas with utilities.
Fiber optics, 4 banks crossing east Marginal, another west of railroad.
Maybe in landscaping area?
DP-18 - a lot of utilities
Many issues moved away from building. Will need to review
1035 Jim (APS) onsite to assist Mark.
DP-20, near fire hydrant.
Need to review fire protection map.
1130 DP-13 & 14 — Fiber & gas.
May place in roadway
1200 DP-16 & DP-17 - okay - review maps
507 B & C - review maps - okay

8/13/09 To review Utility Locating

Storm - DP-9 > field confirm storm
- DP-8
DP-42 - move away from building due to 6" sanitary per Boeing C302. Possible High Voltage 480V E122. May be overhead. Not sanitary - goes into 2-40/2-31. Clear. 8" PRD.

DP-41 Move off of patch area. Fiber? New as built

DP-39 Move out of shed. Locate East of catch basin. Water line (10") in road. Try in between waterline & storm near catch basin

1430 APS offsite
K. Addis meets with Joe (Boeing) to review maps.

1600 K. Addis offsite

1645 at office

Kristen L. Addis
8/13/09

8/14/09 Utility locating

0708 K. Addis onsite
Meet with J. Flaretey

0730 Call M. Dalan (APS) to ask why he is not onsite.

0800 Call M. Dalan. Informed Mark to call when he is on the way. K. Addis to Issaquah to pick up maps.

0825 M. Dalan informs K. Addis that he will be onsite by 0840.

0840 K. Addis inform J. Fla that M. Dalan will be onsite soon.

0903 K. Addis onsite meet with Joe F & M. Dalan

0910 M. Dalan reminds Joe & Kris that the fiber locate in front of the 2-22 building is only cable & not fiber according to map, BTSM sheet 10A of Boeing.

0915 M. Dalan to locate water lines near DP-12.

8/14/09 cont. Utility Locating

1031 DP-43 - okay clear
DP-50 - clear, watch for abandoned gas line
Can move closer if necessary but active gas is near water line
move ~13' North

1126 Spoke with Ted about moving DP-50 Northward. Per Ted, DP-50 was moved inside 2-40's b/c it was too close to DP43. DP-50 is now ~20' South of Ted's original mark

1220 DP-11 double check maps
Measured 10' out from build, which is end of utilities
Marked DP-11 ~18' from 2-40's wall, on crosswalk

1235 DP-10 - Can go inbetween pwr & other unknown or can go east of unknown. 2 locations ok'd.

1257 DP-42 - 2' South of building corner and 15' west of double doors.
At end of Storm.

8/14/09 cont. Utility Locating

1315 DP-41 - too close to fiber optic vault. Current mark is on vault patch.
Checking access directly outside of door N4.

1322 Requested Joe check Haz Mat access panel near DP-41
Mark thinks there may be tank in large patch area due to overcut edge for wire protection.

1342 DP-39 High Voltage duct bank in back of garage.
Outside location okay.
Inside location okay.

1400 DP-37 okay. Airline buried somewhere in street.

1423 Mark offsite

1430 K. Addis offsite

1530 K. Addis at office. Review util-maps. Mark locations on all maps from Boeing.

1730 Complete partial map review

Kristin L Addis

8/17/09 Utility Locating

0900 K Addis onsite
Joe (Boeing) onsite

0915 Mark Dalon onsite
DP-35 - should be clear of storm
Be aware of gas in shed.
DP-05 - Moved just east of previous location due to sanitary clean out

0954 Call to Jill L. (Golder)
Asked about location on DP-06.

1011 Call to D. Kunkel (EPI) - Discuss
DP-29 - near major power lines + Building 2-30
Oil-Water Separator

1029 DP-29 - be very careful of power. Only 7' away from power. Near oil/water sep. tank. Okay. fire protection line acoss the street.
No storm

1114 DP-49 - Be very careful of power. Also sanitary runs diagonal. May want

8/17/09 Utility Locating

to locate exactly where sanitary runs. Hand dig for first 5'. No concrete coring. Asphalt
*Do we need to core if we are hand digging? Concrete below. Yes core hole.

1135 DP-02 - Marking Fire Protection line. Two USTs on map from 1987. Removed?

1139 Call to D. Kunkel to ask about USTs near DP-02.

1156 Have APS reconfirm DP-02 before probing due to fire protection

1215 Lunch

1224 Received call from D. Kunkel
He confirmed that the tanks were removed in 1986. TPH detection. Previous well was removed

1230 K. Addis - checking maps for DP-47

8/17/09 Utility Locating

1240 DP-47
Power - E130
Storm - C310
S.S. - ties into storm
Elec. - E130
Tunnel - 2.25
Fire Protection - 8" under L.D. Sheet. M280

1310 DP-47 okay - Hand dig to avoid storm + other line near loading dock.

1400 DP-33 - okay - review maps
DP-32 - okay - review maps
DP-31 -
DP-32 - moved to transportation ailse, near wells

1412 Walked to all other inside locations. Mark will be onsite to sweep all locations. Will call on Wed morning to check-in.

1420 APS offsite. Kris (EPI) requested Joe (Boeing) find more maps of interior, underground utilities. Kris will review other maps the ste has previously provided by Boeing

8/17/09 Utility Locating

officials. Will make a spreadsheet with observed hazards for probe team.

1500 At conex to see about supplies
29 field filters
Dragger tubes - none

1505 get more tyvek K. Addis offsite

1530 at EPI storage to check for supplies.

1600 At office.

Kristin L Addis
8/17/09

8/18/09 Utility locating

Not onsite - at EPI office during evening. K. Addis map review

Maps

	Plumb.	Fire	Civil Utilities	Golder map	HVAC
DP-01	ok	ok	ok	ok	Get M71 + M81
DP-02	ok APS locates water	10" APS locate	ok	ok	ok
DP-03	3" air	ok	ok	ok	Get M71 + M81
DP-04	ok	ok	ok	ok	Get M71 + M81
DP-05	ok	locate fire	6" Con.	8" Con.	"
DP-06	6" Gas (Alb.)	ok go west	6" SAN	6" SAN	"
DP-07	ok	locate fire	ok	ok	"
DP-08	ok	ok	6" Con.	8" Con.	"
DP-09	Abandon Gas	ok	6" Con	8" Con.	"
DP-10	ok	10"	ok	ok	"
DP-11	ok	ok	6" Storm	ok	"

Other Available

ok South Park Bridge Replacement 316-63 (104 of 453)

Electrical Master Drawing E.1-1
- shows high voltage power. APS previously potholed & located all lines.

S.P.B.R (104 of 453) ok

Boeing E130 - ok

BTSMP Sheet 10 - ok abandoned fuel line

* May have power E1-1 FIND!
" " " + BTSMP sh.10

* May have power E1-1 at Row 10
OK

OK - wait for other maps from Joe.

OK - " " " " " "

2" PVC from Demo building 2-32 BTSMP 4
ok

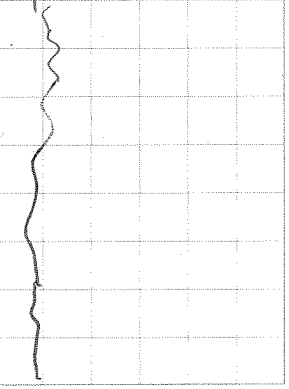
ok - Check for 8" Storm BTSMP 4
OK

8/18/09 Utility Locates cont

	Maps Plumb.	Fire	civil Utilities	Golden	HVAC
DP-12	ok	ok	12" Storm Find outfall	storm	none
DP-13	Relocates		—	—	—
DP-14			—	—	—
DP-15					
DP-16	ok	ok	ok	ok	ok
DP-17	ok	ok	san in ~~storm~~ sw.	ok	ok
DP-18-20	Relocates				
DP-21	ok	ok	storm	san + storm	ok
DP-22	ok	ok	ok		
DP-23	ok	ok	ok-storm	ok	ok
DP-24	airline	ok	vSan	over tunnel A	ok
DP-25	ok	ok	ok	ok	"
DP-26	ok	ok	ok	ok	no ~~maps~~ ~~etc~~
DP-27	ok	ok	ok 10" san	10" San	"
DP-28	ok	ok	ok	ok	"
DP-29	near sewer ok vault	ok	ok	ok	"
DP-30	?				
DP-31	Gas(ab)	ok	S.S.	ok san	
DP-32	ok	ok	ok	ok	no map
DP-33	ok	ok	ok	ok	"
DP-34	ok (Gas ab)	ok	ok	ok	"

8/18/09 Utility Locates cont.

BTSMP	Other
OK	OK
—	—
—	—
ok	ok
ok	ok
ok	ok
ok	High Voltage - middle of wall
ok	ok
ok	ok
	Wait for interior maps if they exist
Power	Power



8/18/09 Utility Locates cont

	Maps Plumb.	Fire	civil Utilities	Golden	HVAC
DP-12	ok	ok	12" Storm Storm Find outfall		none
DP-13	Relocates		—	—	—
DP-14			—	—	—
DP-15					
DP-16	ok	ok	ok	ok	ok
DP-17	ok	ok	San in ~~Storm~~ sw.	ok	ok
DP-18-20	Relocates				
DP-21	ok	ok	storm	San + storm	ok
DP-22	ok	ok	ok		
DP-23	ok	ok	ok-storm	ok	ok
DP-24	airline	ok	vSan	over tunnel A	ok
DP-25	ok	ok	ok	ok	"
DP-26	ok	ok	ok	ok	no ~~maps~~
DP-27	ok	ok	ok 10" San	10" San	"
DP-28	ok	ok	ok	ok	"
DP-29	ok new sewer vault	ok	ok	ok	"
DP-30	?				
DP-31	Gas(ab)	ok	S.S.	ok San	
DP-32	ok	ok	ok	ok	no map
DP-33	ok	ok	ok	ok	"
DP-34	ok (Gas ab)	ok	ok	ok	"

8/18/09 Utility Locates cont.

BTSMP	Other
OK	OK
—	—
—	—
ok	ok
ok	ok
ok	ok
ok	High Voltage - middle of wall
ok	ok
ok	ok
	} Wait for interior maps if they exist
Power	Power

8/18/09 Utility locates

	Plumb.	Fire	Civil Util.	Golden map	HVAC	BTSMP	Other
DP-35	ok	ok	ok	ok	no map	ok	ok
DP-36	ok (Gas)	ok	6" SAN	6" SAN	"	.	
DP-37	Gas!!	ok	ok	ok	"	ok	Gas
DP-38	Gas	ok	6" SAN	OK	"	ok	
DP-39	ok	ok	ok	ok	"	ok	ok
DP-40	ok	ok	Storm?	ok-SS	"	ok	ok
DP-41	unknown line	ok	ok	ok	no map	ok pwr	ok
DP-42	ok	?	storm	Storm	"		
DP-43	Gas	Fire	ok	ok			
DP-44	Water	ok	ok (Channel Drain in middle)	ok	steam	ok	ok
DP-45	ok	ok	ok	ok	ok	ok	ok
DP-46	ok	ok	ok	ok	Steam	ok	ok
DP-47	ok	ok	ok-storm	ok	ok	power	Power
DP-48	air	ok	ok	10" san	~~no map~~ ok		
DP-49	air	ok	ok	ok	ok		
DP-50	ok	ok	ok	ok	ok	—	ok
507B	ok	ok	ok	ok	ok	ok	ok
507C	ok	ok	ok	ok	ok	ok	ok

Kristin L Addis 8/18/09

8/19/09 Utility Locates ~60°F

0905 Receive call from Mark Dalan (APS) that he is at Plant 2. Call Joe to inform him that EPI will be onsite at 9:45.

1030 Kris + Mark walk over to atrium probes. DP-44 thru 46. Joe offsite ~~thru~~ (KA) for meeting

1045 Utilities in access vent area. Need to see tunnel access below.

1057 Call to Boeing Security for access to Utilities below.

1165 Large utility room directly below DP-45. Will need to move. Ask Joe for plans for garage area. Possible Hand Auger in utility room, groundwater pressure? Will wait for plans before relocating

1122 Call Boeing security to open gate on NE corner of 2-22.

1130 507B - OK
507C - OK

1145 - Mark Dalan offsite. K. Addis offsite

Kristen L. Addis 8/19/09

8/20/09 Utility Locates

0900 Meet w/Joe F.
Discuss locates along East Marginal Way.
Joe acquired floor plans of the executive garage (basement) in 2-25 building and 1st floor plans.

0935 Reviewing utility plans
Try to determine if steam + water lines run in Tunnel
Joe agrees that there are more utilities than are on map, but informs EPI that Boeing officials indicate that most utilities run through tunnel. EPI informed Joe that there was a large utility coorider that did not appear to be in tunnel.
Decide to walk area when Jill (Golder) arrives. APS will ✓

1115 Jill onsite
Kris + Joe update Jill on issues.

8/20/09 Utility Locates ~70°F

1130 Walk thru - Jill, Joe, Kris

DP-45 9' W 10' N of previous location

DP-44 3' E 4' S of previous

DP-46 2' SW of previous

Will need to core all 3 holes off hours

DP-19 - leave as is next the water access panel

Core. Notify gas company. Within 6' west of line.

DP-20 move 5' South

Jill ok'd move

Core, Block parking 2 spots.

DP-18 13' North of original

Core. Limited access

1315 Jill offsite → Gas company notification

DP-08 Core, 5 parking spaces.

DP-12 Core, 3 parking spaces

DP-50 Core, 2 4's

DP-11 7' E, 3' N

Block access for core

After hours

8/20/09 Utility Locating ~80°F

1400 DP-42 15' NW of original spot

core

DP-10 - After hours

Core, Blocking roadway

Alt - 6' East

DP-09 5 parking spaces

Core - 2 spaces

DP-41 Core, Haz Mat parking spot

All 3 stalls for sampling

8' W, 6' S of original

DP-39 Core After hours

ok to core during prime hours

DP-37 Core After hours

ok to core during prime hours per Joe F.

DP-35 Asphalt

Store parking

DP-05 Asphalt - After hours

Do not block store access

DP-06 Need to move. Ask Golder

Core. After hours, PCB's

DP-34 5' W of original, Core, After hours. PCB's

DP-36 7' East, Ask Ted, Core

PCB's After hours

8/20/09 Utility Locates

1427 DP-29 - After hours/Weekend Core, After hours

DP-49 After hours/weekend Asphalt

DP-02 Block off whole corner parking for access, Asphalt Truck #3251

DP-47 After hours sampling Core - anytime

DP-01 Core Permit-sidewalk Cascade check - overhead power

DP-15 Inside locked gate - combo lock hand auger, Core, APS

DP-30 Plumbing area tunnel Core, HA, APS

DP-48 After hours, core, APS Transportation ailse

DP-24 L.A. Core, After hours 7'-8' North Core+ Drill after hours. Door 109

DP-25 H.A. After hours bothe Tin shop

8/20/09 Utility Locates

1445 DP-04 Trans. coo-dor APS Block access, After hours

DP-26 Door 2E10 Moved from hallway to shop area. APS Core 6' W 14' N Utility running in middle of hallway, Ted.

DP-28 Core anytime

DP-03 Core anytime - After hours

DP-31 Core move After hours 7' South

DP-32 Core After hours

DP-33 Core After hours

DP-07 Core After hours ok to core, Weld shop

DP-38 Weld Shop, move stuff. Core. Notify shop guys. After hours Door 103 Paul Russell 253 773-0937

DP-40 Core, ok business, Door 101 After hours.

8/20/09

1510 DP-21 Core okay
After hours

DP-23 Core - okay Business hours
After hours.

1530 K. Addis offsite (shower at Boeing)

Kristen J. Addis
8/20/09

8/23/09 Utility Locates
@KA

1942 Placed ITIC utility locate for DP-13 + DP-14.
Ticket number 9204371
Requested to mark all utilities.
Also sent out spreadsheet to Ted, Jill, Doug, Josh, Joe for utilities + other issues.

Kristen J. Addis
8/23/09

8/24/09 Well Installation PL2-507C

0645 At EPI office. Gather equipment + Report to deliver to Wil Ernst.

0720 K. Addis onsite. Meet with Golder representatives. Gather equipment, + bottles, load van

0750 Cascade onsite. Meet with K. Addis. Request they load ~10-55 gal drums onto the flatbed truck.

0800 D. Kunkel (EPI) + Ted Norton (Golder) onsite

0815 Health + Safety Meeting See sign in sheet. Discuss contamination, hazards, utilities, schedule, driller safety etc.

1030 Begin drilling at PL2-507C Hand dig to 3' using post-hole digger Golder taking soil samples.

1200 Continue drilling - heave

1400 Continue drilling -

1510 Silt layer at

1530 At 81.5' 70 gallons of water used EPI indicates to Cascade that they need to have centralizers on the pre-packed screen. Andy indicated that they do not have centralizers with them. EPI

8/24/09

requests that they have someone deliver the centralizers to the site.

1550 Waiting for centralizers

1620 Begin well construction - centralizers onsite. Screen will be set at 65'-75' bgs.

1700 Pre-packed screen and pvc blank installed.

1704 Sand - Top of sand 64' bgs.
bags of bentonite IIII
bags of Sand II

1756 Bentonite ~1' bgs. Will finish monument tomorrow.

1815 Drill rig out of enclosed area

1820 Cascade + K. Addis offsite

1900 At office

Kristen L. Addis
8/24/09

8/25/09 Well Installation ~55° Cloudy

0700 Leave office
0730 K. Addis onsite
0743 Call Boeing Security to open gates at PL2-507B+C.
0751 Boeing security opening gates.
0752 Receive call from Jill L. (Golder) Driller's gathering supplies + equipment from supply truck.
0755 Joe Flaherty onsite
0830 Drillers positioning drill rig.
0900 Continue set-up
0920 Health + Safety Meeting
0931 Begin cutting asphalt.
1033 At 30'. Encountering heave
1055 At 50'. Set well screen at 45'; 35 gallons water to install well
1110 Building well
1200 Well Construction Complete
1240 EPI informs Cascade to wait before transporting drums, due to Boeing banding policy.
1320 J. Parsons + Joe Flaherty onsite to show EPI + Golder how to properly band drums. Flush monuments complete

8/25/09 Well Installation

1415 Call Boeing security to open gate in 2-31 to temporarily store soil drum. Per Joe Flaherty, Boeing forklifts will move palleted soil drums to the 2-44 area.
1435 EPI + Golder leave fenced area. Joe Flaherty to remain + wait for security. Cascade to decon equipment.
1515 EPI unloads equipment at storage + Dropped off equipment for drum banding in 2-44 as requested by J. Parsons.
1538 Cascade, Golder + EPI offsite.

Kristen L. Addis 8/25/09

Utility Locates +

8/26/09 Field Preparation ~60°F

0900 Leave office

0935 At ARI to pick-up bottle order.

1009 At Boeing. Meet with Jill L. of Golder. Per Jill, it is okay to store bottles in conex & trailer.

1045 K. Addis to assist Jill L in measurements on East Marginal Way for points dp-13 & 14.

1130 Receive call from M. Dalan (APS) He is onsite. K. Addis informs him that I will be at the atrium in 15 minutes.

1155 Meet with M. Dalan. Mark is marking DP-44 to DP-46
DP-44 7' SE of original mark
DP-15 - Locked area. Boeing employees opened gate. OK - Rebar
DP-30 - OK
DP-48 - OK
DP-03 - OK
DP-26 - OK

1339 Finish locating

1345 K. Addis & M. Dalan offsite

1425 At office
~~Kristen L. Addis~~

8/27/09 Concrete Coring

0930 To Home Depot to pick-up supplies

1030 Leave storage

1110 Onsite - K. Addis

1130 Moving empty drums to 2-44 Drum storage for Concrete Slurry

1209 Receive call from NW Concrete Cutting. They will be onsite in 20 minutes.

1225 NW Concrete Garret onsite

1230 Health & Safety Meeting

1240 Begin coring @ DP-09.
All outdoor cores will be sealed with plumbers putty

1310 Received call from J. Parsons. She will stop by soon.

1345 J. Parsons speaks with Stores personnel to keep front door open for coring access

1410 Core inside stores
All PCB concrete slurry was stored in a separate 55 gallon drum in the 2-44 Building. All equipment was decoid using alconox solution and tap water rinse. Door to

8/27/09 Concrete Coring

Stores was secured after coring

Both 55-gal drums were label with lids tightened

1620 EPI + NW Concrete cutting offsite.

Kristen L Addis

8/27/09

8/28/09 Concrete Coring

1130 K. Addis onsite

1134 Receive call from Vince with NW Concrete Cutting. They cannot get out of current location

1155 Meet with Joe F. (Boeing) Discuss DP-44 to 46 Per Will, do not take risks with utilities

1340 NW Concrete Cutting - Garret onsite. K. Addis accompanies NWCC to DP-07. Joe Flaherty onsite

1540 Finish DP-11

1545 Core DP-43

1610 Core in tunnel DP-15. @ 14". Too deep. Will need to try to continue with extension. Will wait to core DP-30.

1700 Finish coring. All concrete slurry was placed in 55-gal drum in Z-44 drum storage area. Drum was labeled + tightened.

1715 K. Addis + Garret offsite.

Kristen L Addis

8/28/09

9/3/09 Concrete Coring ~70°F

1115 K. Addis onsite. Garrett called & said he would arrive @ 12:00PM

1203 Garrett onsite (NW Concrete Cutting) Move to North side to core DP-22

1500 Coring complete. Will have to return do to double thick slab in tunnels. Next Wed. Garret offsite

1515 Walk thru remaining probes with Josh. Explain DP18-20 are at a moderate risk with all utilities in the area. Be very careful.

1630 K. Addis offsite

Kristin L Addis
9/3/08

9/8/09 Well Development

0700	K. Addis onsite Gather equipment
0753	Cascade - Casey & Lynn onsite
0810	Loading drums
0845	Call Security to open gates
0852	Receive call from security K. Addis repeats directions
0900	Begin setup PL2-507B
0925	Begin Bail & Surge at PL2-507B See Monitoring Well Development Booklet for details.
1413	Development Complete Clean-up area.
1430	Clips for binding equipment do not fit.
1500	Borrow equipment from 2-49. clips do not fit this binding either
1526	Call security to secure gate area. EPI & Cascade out of enclosure. Cascade offsite.
1540	Return equipment. Unload equipment.
1600	K. Addis offsite.

Kristin L Addis
9/8/09

9/9/09 Concrete Coring ~60°F Cloudy

1000 K. Addis onsite to bind drum + pallets from well developing.

1035 Borrow binding equipment from Deb + Ed in 2-49.

1054 Call Security to open gate.

1150 Finished binding pallets + drums. Lock gate.

1200 Garret onsite for coring. Begin in tunnel @ DP-15. K. Addis informs David upstairs that we are beginning the work in the tunnel.
DP-15 → 18" total 8" top/10" bottom
DP-30 → 18" total 8" top/10" bottom

1333 Core atrium. Discuss Ted Norton's locate in atrium at DP-44. It was placed at end of locate arrow. EPI moved away from locate.

1649 Finish coring. All concrete slurry was stored in 55-gal drum awaiting analytical

1705 Call Glen Hunden to notify for work tomorrow along E. Marginal. Left Josh B's phone #.

1730 K. Addis offsite

J. Addis
9/9/09

9/10/09 Utility locates.

0930 K. Addis onsite. (EPI)
M. Dalan onsite (APS)

0940 Locating DP-27
use original mark of Ted's underneath carts. OK.

1039 Call Cascade to have a forklift dropped off at Gate B. to transport drum onto Boeing fenced area.

1100 K. Addis offsite

J. Addis
9/10/09

9/11/09 Concrete Coring

1100 Receive call from Garrett of NW Concrete Cutting. He will be onsite @ 1130.

1140 K. Addis onsite. Garrett onsite + setting up to redrill DP-44. Core DP-01, DP-44 DP-27, DP-21, DP-23

1331 All ~~Piped~~ concrete slurry (KA) was stored in a 55-gallon drum awaiting analysis prior to disposal. Garrett offsite. K. Addis offsite. Scheduled M. Dalan for Monday morning locate at DP-44.

L. Addis
Kristen 9/11/09

9/15/09 Locate Utilities

1057 Submitted locate request using ITIC to locate DP-13+14. Ticket #922430Z

1115 Placed a call to Jill Lamberts (Golder). EPI informed her that there is a new ticket # for DP-13+14. Also, EPI requested that Golder confirm the gas line location in the area of DP-13+14. If the 8" gas main is under the curbline, how far does Golder ~~wh~~want to be from Gas line and will we NOT (KA) ~~over~~tow have enough room in only one lane, according to the submitted traffic plan.

Golder requested re-coring DP-44, want to move south of last location, but north of column. EPI reminded Golder of extensive utilities in area.

1125 Schedule Garrett for tomorrow morning.

9/15/09 Kristen L. Addis

9/16/09 Concrete Coring ~60°F Partly Sunny

0730 Leave office
0800 Onsite - K. Addis
0810 Garrett onsite - (NW Concrete)
0814 Begin DP-44 3rd attempt
0834 Finish core 4" overlay of concrete with 6" concrete below.

9/21/09 Probing

0450 K. Addis onsite
0455 J. Bernthal onsite
Discuss daily activities
0500 J. Lamberts + T. Sager onsite
Cascade onsite
Health & Safety Meeting
- roadway safety
- walkway & parking accesibility
0505 Setup on DP-44.
See sampling booklet for details
0735 Cascade encounters pea gravel 5' bgs.
Joe & Kris choose a new spot. Need to have APS & corer onsite.
J. Bernthal left site previously at 0550.
0830 Empty purgewater in 2-49 wastewater tank.
0845 Garrett (NW Concrete Cutting) onsite
0900 K. Addis leads Garrett to NE portion of 2-22 to core DP-13 & 14.
Awaiting traffic control.
0905 J. Lamberts calls to ask about traffic control.
0915 Traffic control will be onsite at ~11 am.

9/21/09 cont.

1000 J. Lamberts informs us that Traffic control is coming from Everett & will be onsite by 12:00. EPI completing paperwork, while awaiting Traffic control

1230 Traffic control onsite
Garrett onsite
Cores are ~ 20" thick

1300 Begin DP-13
Refer to sampling booklet for details.

1610 Offroad. TCS begins removing cones.

1655 EPI offsite

Kristen L. Addis

9/23/09 Surveying, Locating, Coring

0720 K. Addis leaves office after gathering equipment + paperwork

0800 K. Addis onsite. DHA onsite - Harry
Discuss H+S. Ariel
- traffic Mark

0805 Walk locations - show DHA all locations that need to be surveyed.
Receive call from M. Dalan he will be onsite @0830.
Meet briefly with Joe Flaherty.
Discuss DP-02.

0915 Walk-thru complete - Harry offsite
Surveyors to begin controls.
K. Addis meets with M. Dalan
Went over locates for DP-02

0945 Locate at DP-~~20~~ 19 (KA)

1000 Garrett (NW CC.) onsite

1010 Begin coring DP-19.

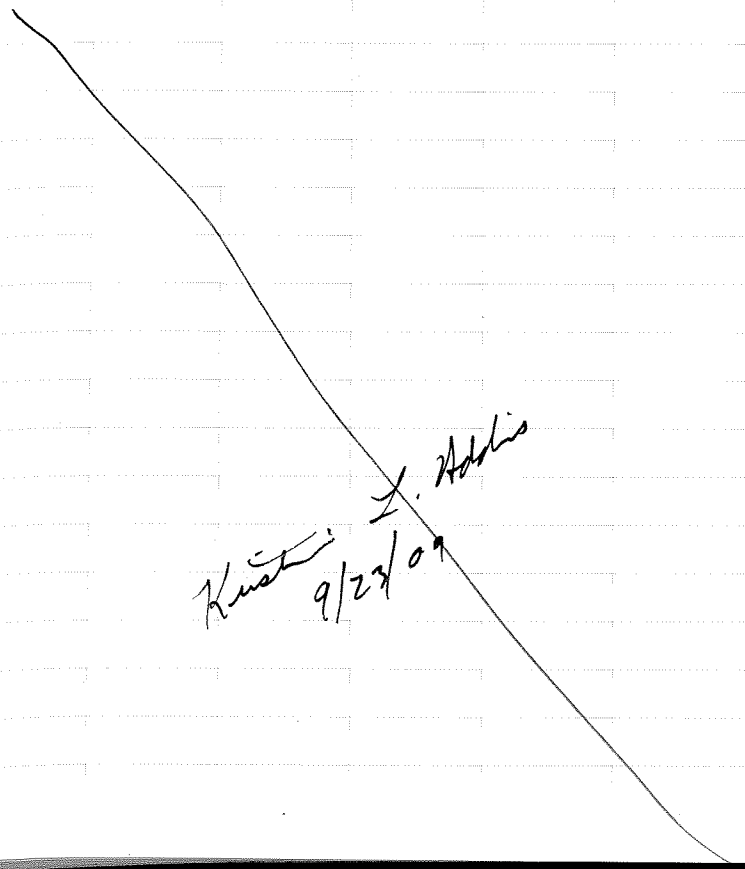
1015 Core complete

1027 Garrett offsite.

1045 K. Addis checks in with surveyors.
Leaves to grab utility maps to review new locations.

9/23/09 cont.

1200 K. Addis returns to surveyors.
1430 Surveying complete for day.
1440 K. Addis offsite - return to office to meet with Mary.
1515 At office.
Give Mary instructions for tomorrow.
1540 K. Addis finished for Boeing work.



PSE

Glen Huden

206-396-4159

Drum Log

Drum ID#	Date Started	Location	Contents
Z900432	8/24/09	PL2-507C	Soil Cutting - Dry
Z900433	8/24/09	PL2-507C	Soil Cuttings-Wet
Z900434	8/24/09	PL2-507C	Soil Cutting - Wet
Z900435	8/24/09	PL2-507C	Soil Cutting - Wet
Z900436	8/24/09	PL2-507C	Soil Cutting -Wet
Z900437	8/24/09	PL2-507C	Soil Cutting - Wet
Z900438	8/25/09	PL2-507B	Soil Cutting - Wet
Z900439	8/25/09	PL2-507B	Soil Cutting - Wet
Z900518	8/27/09	2-31 Shop PCB	Concrete Slurry
Z900519	8/27/09	2-31 area	Concrete Slurry
Z900520	9/8/09	PL2-507B	Development Water
Z900521	9/8/09	PL2-507B	" "
Z900522	9/8/09	PL2-507B C	" "
Z900523	9/8/09	PL2-507B	" "
Z900524	9/8/09	PL2-507C	" "
Z900525	9/8/09	PL2-507C	" "
Z900526	9/8/09	PL2-507C	" "
Z900527	9/8/09	PL2-507B	" "

Z900528 " 9/8/09 PL2-507C Dev. Water
Z900529 " ~~PL2-507C~~

ENVIRONMENTAL PARTNERS INC 295 NE Gilman Boulevard, Suite 201 Issaquah, Washington 98027 ph 425.395.0010 fax 425.395.0011

2-31 Area Concrete Coring Field Book Corrective Measures Study Data Gaps Investigation

Boeing Plant 2
Seattle/Tukwila, Washington
Project Number 17511.1

Environmental Partners, Inc.
295 NE Gilman Blvd. Suite 201
Issaquah, Washington 98027
(425) 395-0010

Table 2-2
2-31 Area Proposed CMS Data Gaps Sampling
Boeing Plant 2

Location	Sample Interval (ft bgs)	Date of coring	Diameter of core (inches)	Core 1	Core 2	Core 3	Extra core	Notes
New Wells								
PL2-507B	35 - 45	Asphalt	16	—				
PL2-507C	75 - 85	Asphalt	16	—				
Direct Push Location								
2-31-DP-01	10 - 14	9/11	3	6"				
2-31-DP-02	10 - 14 40 - 44	Asphalt	3	—				
2-31-DP-03	10 - 14 40 - 44	8/28	3	6"				
2-31-DP-04	10 - 14 40 - 44	8/28	3	6"				
2-31-DP-05	10 - 14 40 - 44	Asphalt	3	—				
2-31-DP-06	10 - 14 40 - 44	8/27	3	6"				
2-31-DP-07	10 - 14 40 - 44	8/28	3	6"				
2-31-DP-08	10 - 14 40 - 44	8/27	3	7"				
2-31-DP-09	10 - 14 40 - 44	8/27/09	3	9"				
2-31-DP-10	10 - 14 40 - 44	8/27	3	6"				
2-31-DP-11	10 - 14 40 - 44	8/28	3	6"	6"			
2-31-DP-12	10 - 14 40 - 44	8/27	3	9"				
2-31-DP-13	10 - 14	street 9/21	3	24"				
2-31-DP-14	10 - 14	street 9/21	3	24"				

Coring field book

Location	Sample Interval (ft bgs)	Date of coring	Diameter of core (inches)	Core 1	Core 2	Core 3	Extra core	Notes
2-31-DP-15	10 - 14	9/3	3	Double slab 18"				8"
2-31-DP-16	10 - 14	asphalt	3	—				
2-31-DP-17	10 - 14	grass	3	—				
2-31-DP-18	10 - 14	9/9	3	6"				
2-31-DP-19	10 - 14	9/9	3	6"	6" 9/9/21			
2-31-DP-20	10 - 14	9/9	3	6"				
2-31-DP-21	10 - 14	9/11 ~~Asphalt~~	3	6"				
2-31-DP-22	10 - 14	9/3	3	7"				
2-31-DP-23	10 - 14	9/11 ~~Asphalt~~	3	~~6"~~				
2-31-DP-24	10 - 14	8/28	3	6"				
2-31-DP-25	10 - 14	8/28	3	6"				
2-31-DP-26	10 - 14	8/28	3	4"				
2-31-DP-27	10 - 14	9/11	3	6"				
2-31-DP-28	10 - 14	8/28	3	6"				
2-31-DP-29	10 - 14	9/3	3	6"				
2-31-DP-30	10 - 14	9/9	3	18"				
2-31-DP-31	10 - 14	8/27	3	6"				
2-31-DP-32	10 - 14	8/27	3	6"				

Location	Sample Interval (ft bgs)	Date of coring	Diameter of core (inches)	Core 1	Core 2	Core 3	Extra core	Notes
2-31-DP-33	10 - 14	8/27	3	6"				
2-31-DP-34	10 - 14	8/27	3	5"				
2-31-DP-35	10 - 14	Asphalt	3	—				
2-31-DP-36	10 - 14	8/27	3	5"				
2-31-DP-37	10 - 14	8/27	3	6"				
2-31-DP-38	10 - 14	8/28	3	14" steel plate ~~LLA~~	15"	6"		
2-31-DP-39	40 - 44 C-level (top of silt)	8/27	3	6"	6"	6"		
2-31-DP-40	10 - 14	8/28	3	7"				
2-31-DP-41	10 - 14	8/27	3	6"				
2-31-DP-42	10 - 14	8/27	3	6"				
2-31-DP-43	10 - 14	8/28	3	6"				
2-31-DP-44	10 - 14	9/9	~~3~~ 6	10"	10"	10"		
2-31-DP-45	10 - 14	9/9	~~3~~ 6	10"				
2-31-DP-46	10 - 14	9/9	~~3~~ 6	10"				
2-31-DP-47	10 - 14	9/3	3	8"				
2-31-DP-48	10 - 14	8/28	3	6"				
2-31-DP-49	10 - 14	Asphalt	3	—				
2-31-DP-50	10 - 14	9/3	3	6"				

ENVIRONMENTAL PARTNERS INC

Attachment C: Health and Safety Plan for 2-31 Area Data Gap Investigation

Boeing Plant 2
Seattle/Tukwila, Washington

Prepared For:

The Boeing Company
P.O. Box 3707
M/C 1W-12
Seattle/Tukwila, WA 98124

April 2009

Prepared By:

Environmental Partners, Inc.
295 NE Gilman Blvd. Suite 201
Issaquah, WA 98027
(425) 395-0010

Douglas C. Kunkel L.G., L.H.G.
Principal Hydrogeologist

1.0 PLAN OBJECTIVES AND APPLICABILITY

This Health and Safety Plan has been written to comply with the standards prescribed by the Occupational Safety and Health Act (OSHA) and the Washington Industrial Safety and Health Act (WISHA).

The purpose of this health and safety plan is to establish protection standards and mandatory safe practices and procedures for all personnel involved with field activities associated with the 2-31 Area Data Gap Investigation at the Boeing Plant 2. This plan assigns responsibilities, establishes standard operating procedures, and provides for contingencies that may occur during field activities. The plan consists of site and facility descriptions, a summary of work activities, an identification and evaluation of chemical and physical hazards, monitoring procedures, personnel responsibilities, a description of site zones, decontamination and disposal practices, emergency procedures, and administrative requirements.

Mr. Josh Bernthal, of Environmental Partners, Inc. (EPI) is the designated Site Health and Safety Officer. Mr. Doug Kunkel and Mr. Ted Norton are designated as alternate Site Health and Safety Officers. As Site Health and Safety Officer, Mr. Bernthal has total responsibility for ensuring that the provisions outlined herein adequately protect worker health and safety and that the procedures outlined by this Health and Safety Plan are properly implemented. In this capacity, Mr. Bernthal will conduct ongoing oversight and site inspections to ensure that this Health and Safety Plan remains current with potentially changing site conditions. Mr. Bernthal has the authority to make health and safety decisions that may not be specifically outlined in this plan, should site conditions warrant such actions. In the event that Mr. Bernthal leaves the site while work is in progress, an alternate Site Health and Safety Officer will be designated.

The provisions and procedures outlined by this Health and Safety Plan apply to all contractors, subcontractors, owner's representatives, oversight personnel, and any other persons involved with the field activities described herein. All such persons are required to read this Health and Safety Plan and indicate that they understand its contents by signing the Site Health and Safety Officer's copy of the Plan. In addition, all such persons are required to provide documentation of their current certification under Occupational Safety and Health Administration's (OSHA) Hazardous Waste Operations and Emergency Response (HAZWOPER) regulation, 29 CFR 1910.120. Copies of this Health and Safety Plan have been distributed to a designated representative of the following companies and/or organizations:

- The Boeing Company

It should be noted that this Health and Safety Plan is based on information that was available as of the date indicated on the Title Page. It is possible that additional hazards that are not specifically addressed by this Health and Safety Plan may exist at the work-site, or may be created as a result of on-site activities. It is EPI's firm belief that active participation in health and safety procedures and acute awareness of on-site conditions by all site workers is crucial to the health and safety of everyone involved. If you identify a site condition that is not addressed by this Health and Safety Plan, or if you have any questions or concerns about site conditions or this Plan, immediately notify the Site Health and Safety Officer.

3.0 HAZARD EVALUATION AND RISK ANALYSIS

In general, there are three broad hazard categories that may be encountered during site work; Chemical Exposure Hazards, Fire/Explosion Hazards, and Physical Hazards. Subsections 3.1 through 3.3 deal with specific hazards falling within each of these broad categories.

3.1 Chemical Exposure Hazards

Table 1 presents chemical-specific data regarding permissible exposure levels (PELs), likely pathways of exposure, target organs that will likely be affected by exposure, and likely symptoms of exposure for hazardous substances that are potentially present at the site. Table 1 data were compiled from the NIOSH Pocket Guide to Chemical Hazards, September 2007 edition. It should be noted that the PELs are the regulated limits; Recommended Exposure Limits (RELs) by NIOSH are guidance but are listed as a reference.

Table 1: Chemical-Specific Exposure Data

Chemical Name	REL*	PEL*	IDLH*	Exposure Route	Target Organs	Symptoms
Aroclor (1242) [CAS 53469-21-9]	NE	NE	NE	See Total PCB	See Total PCB	See Total PCB
Aroclor (1248) [CAS 12672-29-6]	NE	NE	NE	See Total PCB	See Total PCB	See Total PCB
Aroclor (1254] [CAS 11097-69-1]]	NE	NE	NE	See Total PCB	See Total PCB	See Total PCB
Arsenic (elemental) [CAS 7440-38-2]	0.002 mg/m^3	0.010 mg/m^3	5 mg/m^3	Inhalation; ingestion; skin/eye contact	Skin; respiratory system; kidneys; central nervous system; liver; GI tract; respiratory system	Irritation of skin; dermatitis; respiratory distress; diarrhea; kidney damage; muscle tremor; convulsions; GI tract; reproductive effects; lover damage
Benzo(a)anthracene [CAS 56-55-3]	NE	NE	NE			
Benzo(a)pyrene (coal tar pitch volatiles) [CAS 50-32-8]	0.1 mg/m^3	0.2 mg/m^3	80 mg/m^3	Inhalation; skin/eye contact	Skin; respiratory system; bladder, kidneys.	Dermatitis; bronchitis.
Benzo(b)fluoranthene (coal tar pitch volatiles) [CAS 205-99-2)]	0.1 mg/m^3	0.2 mg/m^3	80 mg/m^3	See Benzo(a)pyrene (coal tar pitch volatiles)	See Benzo(a)pyrene (coal tar pitch volatiles)	See Benzo(a)pyrene (coal tar pitch volatiles)
Benzo(k)fluoranthene (coal tar pitch volatiles) [CAS 207-08-9]	NE	NE	NE	See Benzo(a)pyrene (coal tar pitch volatiles)	See Benzo(a)pyrene (coal tar pitch volatiles)	See Benzo(a)pyrene (coal tar pitch volatiles)
Cadmium (dust) [CAS 7440-43-9]	Lowest possible exposure	0.005 mg/m^3	9 mg/m^3	Inhalation; ingestion	Respiratory system, kidneys, prostate, blood	Pulmonary edema, dyspnea, cough, chest tightness, substernal pain, headache, chills, muscular aches, nausea, vomiting, diarrhea, anosmia, emphysema, proteinuria, mild anemia
Chrysene [CAS 218-01-9] (1,2-benzphenanthracene)	NE	NE	NE	See Benzo(a)pyrene (coal tar pitch volatiles)	See Benzo(a)pyrene (coal tar pitch volatiles)	See Benzo(a)pyrene (coal tar pitch volatiles)
Copper (dust) [CAS 7440-5-8]	1 mg/m^3	1 mg/m^3	100 mg/m^3	Inhalation; ingestion; skin/eye contact	Eyes, skin, respiratory system, liver, kidneys	Irritation of eyes, nose and pharynx, nasal septum perforation, metallic taste, dermatitis.

3.3 Physical Hazards

Following is a summary of a variety of physical hazards that may be encountered on the job-site. For convenience, these hazards have been categorized into several general groupings and suggested preventative measures are also included.

Category	Cause	Prevention
Head Hazards	Falling and/or sharp objects, bumping hazards.	Hard hats will be worn by all personnel at all times when overhead hazards are present.
Foot/Ankle Hazards	Sharp objects, dropped objects, uneven and/or slippery surfaces, chemical exposure	Chemical resistant, steel-toed boots must be worn at all times on-site.
Eye Hazards	Sharp objects, poor lighting, bright lights (welding equipment), exposure due to splashes	Safety glasses/face shields will be worn when appropriate. Shaded welding protection will be worn when appropriate.
Electrical Hazards	Underground utilities, overhead utilities	Locator service mark-outs, visual inspection of work area prior to starting work.
Mechanical Hazards	Heavy equipment such as drill rigs, service trucks, excavation equipment, saws, drills, etc.	Competent operators, backup alarms, regular maintenance, daily mechanical checks, proper guards.
Noise Hazards	Machinery creating >85 decibels TWA, >115 decibels continuous noise, or peak at >140 decibels	Wear earplugs or protective ear muffs when appropriate.
Fall Hazards	Elevated and/or slippery or uneven surfaces. Trips caused by poor "housekeeping" practices	Care should be used to avoid such accidents and to maintain good "housekeeping". Fall protection devices must be used when work proceeds on elevated surfaces.
Lifting Hazards	Injury due to improper lifting techniques, overreaching/overextending, heavy objects	Use proper lifting techniques, mechanical devices where appropriate.
Lighting Accidents	due to improper illumination	Work will proceed during daylight hours only, or under sufficient artificial illumination.

4.1.2 Action Levels

Photoionization Detector (PID)

Response	Length of Time	Protective Measure
< 5 ppm	15 minute average	Level D PPE
>1 ppm over background	15 minute average	Evaluate vinyl chloride concentrations relative to total VOCs using colorimetric tubes
5-25 ppm	15 minute average	Allow work area to vent. If persistent: Level C
25-50 ppm	Sustained over 15 minutes	Level C PPE, High-efficiency organic vapor cartridges in respirator
> 50 ppm	One (1) minute average	Vacate work area, notify Site Health and Safety Officer or designated alternate immediately

It should be noted that these action levels are based on the presence of benzene and vinyl chloride which have the lowest PELs and STELs of the compounds listed in Table 1.

4.2 Site Monitoring

The Site Health and Safety Officer will visually inspect the work-site at least daily to identify whether any new potential hazards have arisen. If and whenever possible, immediate measures will be taken to eliminate, or reduce the risks associated with these hazards.

4.3 Personal Protective Equipment (PPE)

It is anticipated that all field tasks will be performed in Level D PPE unless additional PPE is required because of task or site-specific upgrades. Level D PPE includes the following items:

- Nitrile inner and outer gloves
- Steel toe, steel shank work boots. Neoprene steel-toe, steel shank boots for ground water sampling and for drilling below the water table
- Hearing protection during drilling activities
- Hard hat during drilling activities and excavation work
- Safety glasses
- Cotton or Tyvek coveralls required

Level C PPE includes all Level D items plus the following:

- Full-face respirator equipped with organic vapor/HEPA combination cartridges (full face respirator replaces safety glasses for eye protection),
- Tyvek or Saranex coveralls
- Neoprene steel-toe, steel shank boots

6.0 SITE CONTROL

The following section identifies several activity zones located on the work-site. It should be noted that access to some of these activity zones (i.e. the exclusion zone) will be restricted to designated personnel.

The work site is secured. Pedestrians and other unauthorized personnel will not be allowed within the exclusion zone.

6.1 Contamination Reduction Zone

A specified area will be established for the decontamination of sampling equipment and personnel. Because the location of this zone will change during the course of the investigation the site safety office will discuss the contaminant reduction zone location during each daily safety briefing.

6.1.1 Decontamination Procedures - Equipment

Split-spoon samplers and other down-hole equipment will be decontaminated with a solution of Liquinox™ or equivalent soap and potable water and rinsed with distilled or deionized water prior to collecting soil samples for analysis as noted in Section 3.8.2 of the work plan. An alternative method of decontamination is to hot water pressure wash all down-hole sampling and drilling equipment. All decontamination wastes will be containerized, properly marked, and left in a designated on-site location for disposition by Boeing.

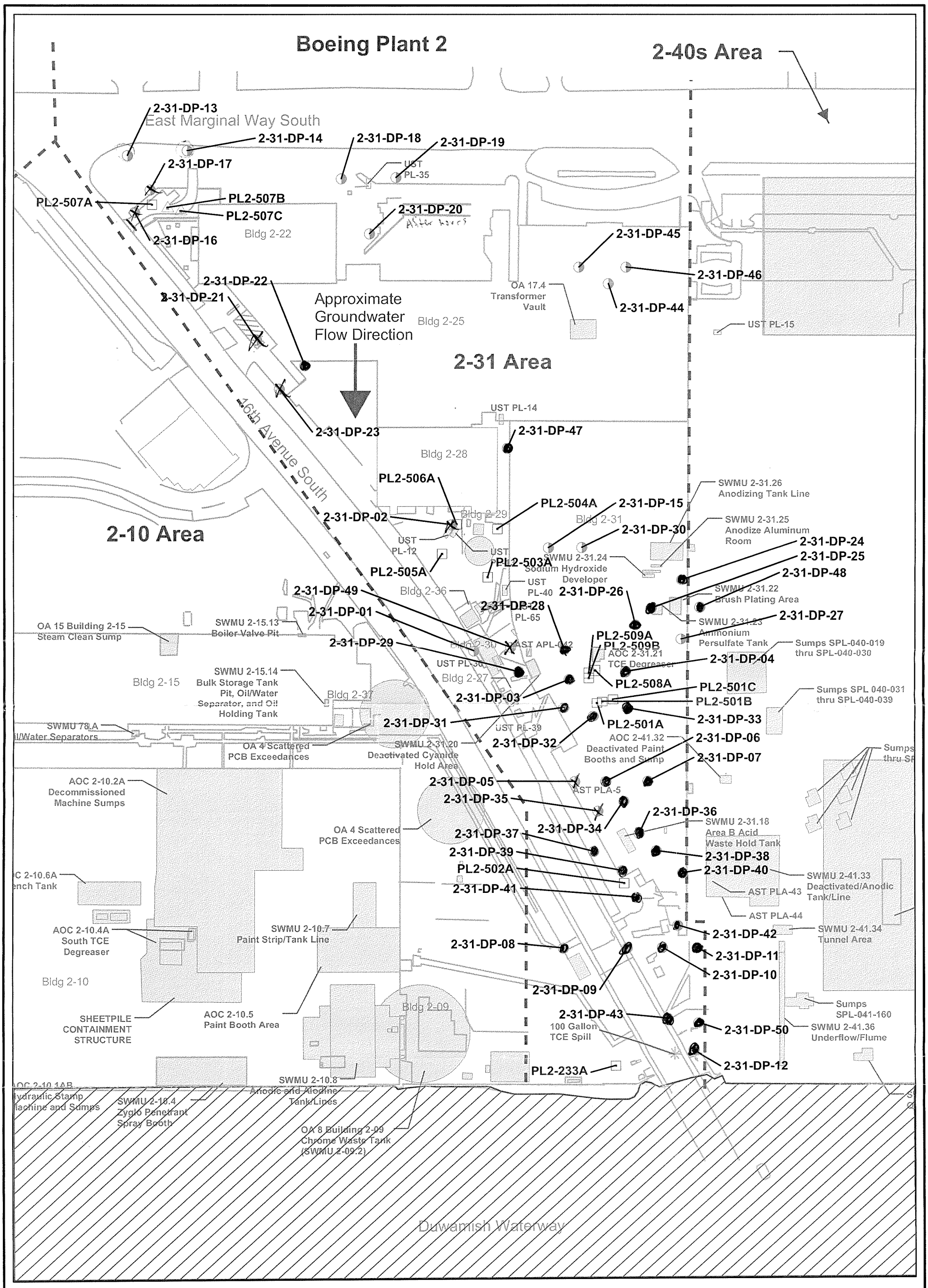
6.1.2 Decontamination Procedures - Personnel

All personal protective clothing (i.e. nitrile gloves) and other miscellaneous waste will be bagged in opaque garbage bags and will be discarded in the trash. All on-site personnel must, at a minimum, wash their face and hands before eating, before break periods, and prior to leaving the site as noted in Section 3.8.3 of the work plan.

SIGNATURE PAGE

I have read this Health and Safety Plan and understand its contents. I agree to abide by its provisions and will immediately notify the Site Health and Safety Officer (Josh Bernthal, (425) 241-5400), or designated alternate if site conditions or hazards not specifically designated herein are encountered.

Name (Print)	Signature	Date	Company/Affiliation
Kristin Addis	Kristin L. Addis	8/28/09	EPI
Garret Harrington	Garret Harrington	8/28/09	NWCC
Kristin Addis	Kristin L. Addis	9/3/09	EPI
Garret Harrington	Garret Harrington	9/3/09	NWCC
Kristin Addis	Kristin L. Addis	9/9/09	EPI
Garret Harrington	Garret Harrington	9/9/09	NWCC



LEGEND

- New Probe Location
- Wells Sampled for Data Gaps
- New Well Location
- Plant 2 Sub-Area Boundary

0 120

Scale 1" = 120 Feet

Map Projection: Washington State Plane North Zone, NAD 83, Feet

Source: Weston, Golder Associates

2-31 Area
Groundwater and Soil Data Gap
Sampling Locations

Drawn: TH	Revision: 5	Date: Apr 2009	Figure: 2-1

0131646008100_MXDs_Area_2_31_RO5.mxd

Golder Associates

ENVIRONMENTAL PARTNERS INC 295 NE Gilman Boulevard, Suite 201 Issaquah, Washington 98027 ph 425.395.0010 fax 425.395.0011

2-31 Area Direct-Push Probe Sampling Field Book Corrective Measures Study Data Gaps Investigation

Boeing Plant 2
Seattle/Tukwila, Washington
Project Number 17511.1

Environmental Partners, Inc.
295 NE Gilman Blvd. Suite 201
Issaquah, Washington 98027
(425) 395-0010

Multiparameter Probe Instrument Calibration Form

Meter Type	Manufacturer	Model Number	Mfg. Serial#	Rental Co. Serial #	Date	Time
YSI Multiparameter	YSI	556 MPS	06A1684AO	NA	8/31/09	1430

Calibrated to Autocal Solution Manufacturer Aurical Lot Number 7359

pH = 4.00=4.01 Turbidity = NA Temperature = 21.67 °C

Conductivity = 4.49 mS/cm=4.49S/m Dissolved Oxygen = 0.00 mg/L=0.00 mg/L Salinity = NA

Turbidity Meter						

Comments: OAKTON pH10-LOT 2905557 ZERO OXYGEN SOLN OAKTON 2812515 pH 7 OAKTON LOT 2906508 pH7=7.02
pH 10 = 10.01 ORP 228mV = 227.1 ZOBELL'S SOLN +228mV LOT 1907276

Meter Type	Manufacturer	Model Number	Mfg. Serial#	Rental Co. Serial #	Date	Time
Turbidimeter	LaMotte	2020e	SN-ME14943	NA	8/31/09	1500

Calibrated to Autocal Solution Manufacturer _____ Lot Number _____

pH = _____ Turbidity = _____ Temperature = _____

Conductivity = _____ Dissolved Oxygen = _____ Salinity = _____

Turbidity Meter	0.0=0.0	1.0=1.05	10.00=10.19			

Comments: AMCO Turbidity 10.0 NTU LOT- P891234
AMCO Turbidity 1.0 NTU LOT-P994875

Meter Type	Manufacturer	Model Number	Mfg. Serial#	Rental Co. Serial #	Date	Time
MULTIPARAMETER	YSI	556 MPS	06A1684AO	NA	9/1/09	1430

Calibrated to Autocal Solution Manufacturer Aurical Lot Number 7359

pH = 4.00=3.98 Turbidity = NA Temperature = 19.58°C

Conductivity = 4.49 mS/cm=4.49 S/m Dissolved Oxygen = 0.00 mg/L=0.05 mg/L Salinity = NA

Turbidity Meter						

Comments: OAKTON pH 10-LOT 2905557 = 9.95 ZERO OXYGEN SOLN LOT 2812515 0 mg/L = 0.05 mg/L
OAKTON pH7-LOT 2906508 = 7.01 ZOBELL'S SOLN LOT 1907276 +228mV = 226.8 mV

Meter Type	Manufacturer	Model Number	Mfg. Serial#	Rental Co. Serial #	Date	Time
Turbidimeter	LaMotte	2020e	SN-ME14943	NA	9/2/09	1445

Calibrated to Autocal Solution Manufacturer _____ Lot Number _____

pH = _____ Turbidity = _____ Temperature = _____

Conductivity = _____ Dissolved Oxygen = _____ Salinity = _____

Turbidity Meter	0.0=0.0	1.0=0.96	10=9.89			

Comments: AMCO Turbidity Meter 10.0 NTU LOT P891234
AMCO Turbidity Meter 1.0 NTU LOT P994875

Multiparameter Probe Instrument Calibration Form

Meter Type	Manufacturer	Model Number	Mfg. Serial#	Rental Co. Serial #	Date	Time
MULTIPARAMETER	YSI	556 MPS	06A1684AC	NA	9/2/09	1430

Calibrated to Autocal Solution Manufacturer Aurical Lot Number 7359

pH = 4.00=4.02 Turbidity = NA Temperature = 18.62

Conductivity = 4.49 S/cm = 4.492 S/cm Dissolved Oxygen = 0.00 mg/L = 0.04 mg/L Salinity = NA

Turbidity Meter						

Comments:
OAKTON pH 10 LOT 2905557 - 9.96
OAKTON pH 7 LOT 2906508 - 7.01
ZERO OXYGEN SOL'N 2812515 0.00 mg/L = 0.04 mg/L
ORP 220 mV = 227.1 mV LOT 1907276 ZOBELL'S SOLN

Meter Type	Manufacturer	Model Number	Mfg. Serial#	Rental Co. Serial #	Date	Time
Turbidimeter	LaMotte	2020e	SN-ME 14943	NA	9/2/09	1440

Calibrated to Autocal Solution Manufacturer _____ Lot Number _____

pH = _____ Turbidity = _____ Temperature = _____

Conductivity = _____ Dissolved Oxygen = _____ Salinity = _____

Turbidity Meter	0.0=0.0	1.0=1.1	10.0=10.09			

Comments: AMCO Turbidimeter 10.0 NTU LOT P891234
AMCO Turbidity Meter 1.0 NTU LOT P994875

Meter Type	Manufacturer	Model Number	Mfg. Serial#	Rental Co. Serial #	Date	Time
MULTIPARAMETER	YSI	556MPS	06A1684AC	NA	9/3/09	1420

Calibrated to Autocal Solution Manufacturer Aurical Lot Number 7359

pH = 4.00=3.99 Turbidity = NA Temperature = 20.0C

Conductivity = 4.49 S/cm = 4.493 S/cm Dissolved Oxygen = 0.00 mg/L = 0.03 mg/L Salinity = NA

Turbidity Meter						

Comments:
OAKTON pH 10 LOT 2905557 - 10.03
OAKTON pH 7 LOT 2906503 - 7.01
ZERO OXYGEN SOL'N 2712515 0.00 mg/L = 0.03 mg/L
ORP 228 mV = 228.3 mV LOT 1907276 ZOBELL'S SOLN

Meter Type	Manufacturer	Model Number	Mfg. Serial#	Rental Co. Serial #	Date	Time
Turbidimeter	LaMotte	2020e	SN-ME 14943	NA	9/3/09	1455

Calibrated to Autocal Solution Manufacturer _____ Lot Number _____

pH = _____ Turbidity = _____ Temperature = _____

Conductivity = _____ Dissolved Oxygen = _____ Salinity = _____

Turbidity Meter	0.0=0.0	1.0=1.1	10.0=10.01			

Comments: AMCO Turbidimeter 10.0 NTU LOT P891234
AMCO Turbid. meter 1.0 NTU LOT P994875

Multiparameter Probe Instrument Calibration Form

Meter Type	Manufacturer	Model Number	Mfg. Serial#	Rental Co. Serial #	Date	Time
MULTIPARAMETER	YSI	556 MPS	06A1684AC	NA	9/8/09	1420

Calibrated to Autocal Solution Manufacturer: Aurical Lot Number: 7359

pH = 4.00 4.02 Turbidity = NA Temperature = 19.67

Conductivity = 4.49 mS/cm = 4.49 mS/cm Dissolved Oxygen = 0.00 mg/L = 0.03 mg/L Salinity = NA

Turbidity Meter						

Comments:
OAKTON pH 10 LOT 2905557-10.01 ZERO OXYGEN SOL'N 2812515 0.00 mg/L = 0.03 mg/L
OAKTON pH 7 LOT 2906588-7.06 ORP 228 mV = 227.1 mV LOT 1907276 ZOBELLS SOL'N

Meter Type	Manufacturer	Model Number	Mfg. Serial#	Rental Co. Serial #	Date	Time
Turbidimeter	LaMotte	2020e	SN-ME 14943	NA	9/8/09	1435

Calibrated to Autocal Solution Manufacturer: _____ Lot Number: _____

pH = _____ Turbidity = _____ Temperature = _____

Conductivity = _____ Dissolved Oxygen = _____ Salinity = _____

Turbidity Meter	0.0 = 0.0	1.0 = 1.03	10.0 = 10.05			

Comments: AMCO Turbidimeter 10.0 NTU LOT P891234
AMCO Turbidimeter 1.0 NTU LOT P994875

Meter Type	Manufacturer	Model Number	Mfg. Serial#	Rental Co. Serial #	Date	Time
MULTIPARAMETER	YSI	556 MPS	06A1684AC	NA	9/9/09	1320

Calibrated to Autocal Solution Manufacturer: Aurical Lot Number: 7359

pH = 4.00 : 4.01 Turbidity = NA Temperature = 20.36

Conductivity = 4.49 mS/cm = 4.49 mS/cm Dissolved Oxygen = 0.00 mg/L = 0.05 mg/L Salinity = NA

Turbidity Meter						

Comments:
OAKTON pH 10 LOT 2905557-10.06 ZERO OXYGEN SOL'N 2812515 0.00 mg/L = 0.05 mg/L
OAKTON pH 7 LOT 2906588 = 7.01 ORP 228 mV = 226.9 mV LOT 1907276 ZOBELLS SOL'N

Meter Type	Manufacturer	Model Number	Mfg. Serial#	Rental Co. Serial #	Date	Time
Turbidimeter	LaMotte	2020e	SN-ME 14943	NA	9/9/09	1330

Calibrated to Autocal Solution Manufacturer: _____ Lot Number: _____

pH = _____ Turbidity = _____ Temperature = _____

Conductivity = _____ Dissolved Oxygen = _____ Salinity = _____

Turbidity Meter	0.0 = 0.0	1.0 = 1.14	10.0 = 10.06			

Comments: AMCO Turbidimeter 10.0 NTU LOT P891234
AMCO Turbidimeter 1.0 NTU LOT P994875

Multiparameter Probe Instrument Calibration Form

Meter Type	Manufacturer	Model Number	Mfg. Serial#	Rental Co. Serial #	Date	Time
MULTIPARAMETER	YSI	556 MPS	06A1684AC	NA	9/10/09	1120

Calibrated to Autocal Solution Manufacturer Aurical Lot Number 7359

pH = 4.00=3.92 Turbidity = NA Temperature = 19.96

Conductivity = 4.49mS/cm=4.49mS/cm Dissolved Oxygen = 0.00mg/L=0.06mg/L Salinity = NA

Turbidity Meter						

Comments:
OAKTON pH 10 LOT 2905557-9.94 ZERO OXYGEN SOL'N 2812515 0.00mg/L=0.06mg/L
OAKTON pH 7 LOT 2906508-7.01 ORP=228mV=230.6mV LOT 1907276 ZOBELL'S Solution

Meter Type	Manufacturer	Model Number	Mfg. Serial#	Rental Co. Serial #	Date	Time
Turbidimeter	~~LaMOTTE~~	2020e ~~556MPS~~	SN-Me-14943	NA	9/10/09	1120

Calibrated to Autocal Solution Manufacturer _____ Lot Number _____

pH = _____ Turbidity = _____ Temperature = _____

Conductivity = _____ Dissolved Oxygen = _____ Salinity = _____

Turbidity Meter	0.0=0.0	1.0=1.21	10=10.31			

Comments: AMCO Turbidimeter 10.0 NTU LOT P891234
AMCO Turbidimeter 1.0 NTU LOT P994875

Meter Type	Manufacturer	Model Number	Mfg. Serial#	Rental Co. Serial #	Date	Time
MULTIPARAMETER	YSI	556MPS	06A1684AC	NA	9/11/09	0740

Calibrated to Autocal Solution Manufacturer Aurical Lot Number 7359

pH = 4.00=4.02 Turbidity = NA Temperature = 20.31

Conductivity = 4.49mS/cm=4.486mS/cm Dissolved Oxygen = 0.00mg/L=0.07mg/L Salinity = NA

Turbidity Meter						

Comments: OAKTON pH 10 LOT 2905557-10.01 ZERO OXYGEN SOL'N 2812515 0.00mg/L=0.07mg/L
OAKTON pH 7 LOT 2906508-7.06 ORP=228mV=226.9mV LOT 1907276 Zobell Solution

Meter Type	Manufacturer	Model Number	Mfg. Serial#	Rental Co. Serial #	Date	Time
Turbidimeter	LaMotte	2020e	SN-Me-14943	NA	9/11/09	0800

Calibrated to Autocal Solution Manufacturer _____ Lot Number _____

pH = _____ Turbidity = _____ Temperature = _____

Conductivity = _____ Dissolved Oxygen = _____ Salinity = _____

Turbidity Meter	0.0=0.0	1.0=1.01	10=9.98			

Comments: AMCO Turbidimeter 10.0 NTU LOT P891234
AMCO Turbidimeter 1.0 NTU LOT P994875

Multiparameter Probe Instrument Calibration Form

Meter Type	Manufacturer	Model Number	Mfg. Serial#	Rental Co. Serial #	Date	Time
MULTIPARAMETER	YSI	556MPS	06A1684AC	NA	9/14/09	0700

Calibrated to Autocal Solution Manufacturer Auricel Lot Number 7359

pH = 4.00-3.96 Turbidity = NA Temperature = 18.34

Conductivity = 4.49 mS/cm - 4.473 mS/cm Dissolved Oxygen = 0.00 mg/L - 0.0 mg/L Salinity = NA

Turbidity Meter						

Comments:
OAKTON pH 10 LOT 2705557 9.97
OAKTON pH 7 LOT 2706508 7.06
ZERO OXYGEN SOL'N 281 2515 0.00 mg/L = 0.0 mg/L
ORP = 238 mV = 227.6 mV LOT 1907276 ZOBELL'S SOLN

Meter Type	Manufacturer	Model Number	Mfg. Serial#	Rental Co. Serial #	Date	Time
Turbidimeter	LaMotte	2020e	SN-ME14443	NA	9/14/09	0715

Calibrated to Autocal Solution Manufacturer _____ Lot Number _____

pH = _____ Turbidity = _____ Temperature = _____

Conductivity = _____ Dissolved Oxygen = _____ Salinity = _____

Turbidity Meter	0.0-0.0	1.0-1.10	10.0-9.86			

Comments:
AMCO Turbidimeter 10.0 NTU LOT P897234
AMCO Turbidimeter 1.0 NTU LOT P994875

Meter Type	Manufacturer	Model Number	Mfg. Serial#	Rental Co. Serial #	Date	Time
Multiparameter	YSI	556MPS	06A1684AC	NA	9/15/09	0615

Calibrated to Autocal Solution Manufacturer Auricel Lot Number 7359

pH = 4.00-3.98 Turbidity = NA Temperature = 19.06

Conductivity = 4.49 mS/cm - 4.492 mS/cm Dissolved Oxygen = 0.06 mg/L - 0.0 mg/L Salinity = NA

Turbidity Meter						

Comments: OAKTON pH 10 LOT 2705557 - 9.96 ZERO OXYGEN SOL'N 221 2515 0.00 mg/L = 0.0 mg/L
OAKTON pH 7 LOT 2706508 - 6.98 ORP = 228 mV = 227.6 mV LOT 1907276 ZOBELL'S SOLN

Meter Type	Manufacturer	Model Number	Mfg. Serial#	Rental Co. Serial #	Date	Time
Turbidimeter	LaMotte	2020e	SN-ME14443	NA	9/15/09	0630

Calibrated to Autocal Solution Manufacturer _____ Lot Number _____

pH = _____ Turbidity = _____ Temperature = _____

Conductivity = _____ Dissolved Oxygen = _____ Salinity = _____

Turbidity Meter	0.0-0.0	1.0-1.10	10.0-10.20			

Comments: AMCO Turbidimeter 10.0 NTU LOT P891234
AMCO Turbidimeter 1.0 NTU LOT P994875

Multiparameter Probe Instrument Calibration Form

Meter Type	Manufacturer	Model Number	Mfg. Serial#	Rental Co. Serial #	Date	Time
Multiparameter	YSI	556 MPS	06A1694AC	NA	9/16/09	0635

Calibrated to Autocal Solution Manufacturer Aurical Lot Number 7359

pH = 4.00=4.05 Turbidity = NA Temperature = 21.06

Conductivity = 4.49 mS/cm = 4.49 G-R Dissolved Oxygen = 0.00 mg/L = 0.05 mg/L Salinity = NA

Turbidity Meter						

Comments: OAKTON pH 10 LOT 2905557 - 10.09 ZERO OXYGEN SOLN 2812515 0.00 mg/L = 0.04 mg/L
OAKTON pH 7 LOT 2906508 - 7/10 ORP: 228 mV = 231.2 mV LOT 1907276 20861L5524

Meter Type	Manufacturer	Model Number	Mfg. Serial#	Rental Co. Serial #	Date	Time
Turbidimeter	LaMotte	2020e	SN:Me.14943	NA	9/16/09	0710

Calibrated to Autocal Solution Manufacturer _____ Lot Number _____

pH = _____ Turbidity = _____ Temperature = _____

Conductivity = _____ Dissolved Oxygen = _____ Salinity = _____

Turbidity Meter	0.0=0.0	1.0=1.11	10.0=10.21			

Comments: AMCO turbidimeter 10.0 NTU LOT P891284
AMCO Turbidimeter 1.0 NTU LOT P994875

Meter Type	Manufacturer	Model Number	Mfg. Serial#	Rental Co. Serial #	Date	Time
~~Multiparameter~~ Turbidity	YSI	556MPS	06A1604AC	NA	9/21/09	0514

Calibrated to Autocal Solution Manufacturer _____ Lot Number _____

pH = 4: 3.99 7.0=7.03 10.05 Turbidity = _____ Temperature = 141.23

Conductivity = 4.53 Dissolved Oxygen = _____ Salinity = _____

Turbidity Meter						

Comments:

Meter Type	Manufacturer	Model Number	Mfg. Serial#	Rental Co. Serial #	Date	Time
Turbidity	LaMotte	~~556MPS~~ 2020e	Me.14943	no	9/21/09	0520

Calibrated to Autocal Solution Manufacturer _____ Lot Number _____

pH = 3.99 Turbidity = _____ Temperature = _____

Conductivity = 4.503 Dissolved Oxygen = _____ Salinity = _____

Turbidity Meter	0=0.06	1.0=1.8	10.0=10.62			

Comments:

Multiparameter Probe Instrument Calibration Form

Meter Type	Manufacturer	Model Number	Mfg. Serial#	Rental Co. Serial #	Date	Time
Multiparameter	YSI	556 MPS	0CA1284AC	NA	9/24/09	0715

Calibrated to Autocal Solution Manufacturer Aurical Lot Number 7359

pH = 4.00 = 4.02 Turbidity = NA Temperature = 15.71

Conductivity = 4.49mS/cm = 4.49mS/cm Dissolved Oxygen = 0.00mg/L = 0.06mg/L Salinity = NA

Turbidity Meter						

Comments:
OAKTON pH 10 LOT 2905557 = 10.06 ZERO OXYGEN SOL'N 2812515 0.00mg/L = 0.06mg/L
OAKTON pH 7 LOT [illegible] = 7.06 ORP = 228mV = 230.1 LOT 1907276 20% See SNs

Meter Type	Manufacturer	Model Number	Mfg. Serial#	Rental Co. Serial #	Date	Time
Turbidimeter	LaMotte	2020e	SN ME14943	NA	9/24/09	0730

Calibrated to Autocal Solution Manufacturer ______ Lot Number ______

pH = ______ Turbidity = ______ Temperature = ______

Conductivity = ______ Dissolved Oxygen = ______ Salinity = ______

Turbidity Meter	0.0 = 0.0	1.0 =	10.0			

Comments: AMCO Turbidimeter 10.0 LOT P891889
AMCO Turbidimeter 1.0 LOT P994875

Meter Type	Manufacturer	Model Number	Mfg. Serial#	Rental Co. Serial #	Date	Time

Calibrated to Autocal Solution Manufacturer ______ Lot Number ______

pH = ______ Turbidity = ______ Temperature = ______

Conductivity = ______ Dissolved Oxygen = ______ Salinity = ______

Turbidity Meter						

Comments:

Meter Type	Manufacturer	Model Number	Mfg. Serial#	Rental Co. Serial #	Date	Time

Calibrated to Autocal Solution Manufacturer ______ Lot Number ______

pH = ______ Turbidity = ______ Temperature = ______

Conductivity = ______ Dissolved Oxygen = ______ Salinity = ______

Turbidity Meter						

Comments:

Multiparameter Probe Instrument Calibration Form

Meter Type	Manufacturer	Model Number	Mfg. Serial#	Rental Co. Serial #	Date	Time

Calibrated to Autocal Solution Manufacturer ____________ Lot Number ____________

pH = ____________ Turbidity = ____________ Temperature = ____________

Conductivity = ____________ Dissolved Oxygen = ____________ Salinity = ____________

Turbidity Meter						

Comments:

Meter Type	Manufacturer	Model Number	Mfg. Serial#	Rental Co. Serial #	Date	Time

Calibrated to Autocal Solution Manufacturer ____________ Lot Number ____________

pH = ____________ Turbidity = ____________ Temperature = ____________

Conductivity = ____________ Dissolved Oxygen = ____________ Salinity = ____________

Turbidity Meter						

Comments:

Meter Type	Manufacturer	Model Number	Mfg. Serial#	Rental Co. Serial #	Date	Time

Calibrated to Autocal Solution Manufacturer ____________ Lot Number ____________

pH = ____________ Turbidity = ____________ Temperature = ____________

Conductivity = ____________ Dissolved Oxygen = ____________ Salinity = ____________

Turbidity Meter						

Comments:

Meter Type	Manufacturer	Model Number	Mfg. Serial#	Rental Co. Serial #	Date	Time

Calibrated to Autocal Solution Manufacturer ____________ Lot Number ____________

pH = ____________ Turbidity = ____________ Temperature = ____________

Conductivity = ____________ Dissolved Oxygen = ____________ Salinity = ____________

Turbidity Meter						

Comments:

Multiparameter Probe Instrument Calibration Form

Meter Type	Manufacturer	Model Number	Mfg. Serial#	Rental Co. Serial #	Date	Time

Calibrated to Autocal Solution Manufacturer ____________ Lot Number ____________

pH = ________ Turbidity = ________ Temperature = ________

Conductivity = ________ Dissolved Oxygen = ________ Salinity = ________

Turbidity Meter						

Comments:

Meter Type	Manufacturer	Model Number	Mfg. Serial#	Rental Co. Serial #	Date	Time

Calibrated to Autocal Solution Manufacturer ____________ Lot Number ____________

pH = ________ Turbidity = ________ Temperature = ________

Conductivity = ________ Dissolved Oxygen = ________ Salinity = ________

Turbidity Meter						

Comments:

Meter Type	Manufacturer	Model Number	Mfg. Serial#	Rental Co. Serial #	Date	Time

Calibrated to Autocal Solution Manufacturer ____________ Lot Number ____________

pH = ________ Turbidity = ________ Temperature = ________

Conductivity = ________ Dissolved Oxygen = ________ Salinity = ________

Turbidity Meter						

Comments:

Meter Type	Manufacturer	Model Number	Mfg. Serial#	Rental Co. Serial #	Date	Time

Calibrated to Autocal Solution Manufacturer ____________ Lot Number ____________

pH = ________ Turbidity = ________ Temperature = ________

Conductivity = ________ Dissolved Oxygen = ________ Salinity = ________

Turbidity Meter						

Comments:

Multiparameter Probe Instrument Calibration Form

Meter Type	Manufacturer	Model Number	Mfg. Serial#	Rental Co. Serial #	Date	Time

Calibrated to Autocal Solution Manufacturer ____________ Lot Number ____________

pH = ____________ Turbidity = ____________ Temperature = ____________

Conductivity = ____________ Dissolved Oxygen = ____________ Salinity = ____________

Turbidity Meter						

Comments:

Meter Type	Manufacturer	Model Number	Mfg. Serial#	Rental Co. Serial #	Date	Time

Calibrated to Autocal Solution Manufacturer ____________ Lot Number ____________

pH = ____________ Turbidity = ____________ Temperature = ____________

Conductivity = ____________ Dissolved Oxygen = ____________ Salinity = ____________

Turbidity Meter						

Comments:

Meter Type	Manufacturer	Model Number	Mfg. Serial#	Rental Co. Serial #	Date	Time

Calibrated to Autocal Solution Manufacturer ____________ Lot Number ____________

pH = ____________ Turbidity = ____________ Temperature = ____________

Conductivity = ____________ Dissolved Oxygen = ____________ Salinity = ____________

Turbidity Meter						

Comments:

Meter Type	Manufacturer	Model Number	Mfg. Serial#	Rental Co. Serial #	Date	Time

Calibrated to Autocal Solution Manufacturer ____________ Lot Number ____________

pH = ____________ Turbidity = ____________ Temperature = ____________

Conductivity = ____________ Dissolved Oxygen = ____________ Salinity = ____________

Turbidity Meter						

Comments:

Multiparameter Probe Instrument Calibration Form

Meter Type	Manufacturer	Model Number	Mfg. Serial#	Rental Co. Serial #	Date	Time

Calibrated to Autocal Solution Manufacturer ____________ Lot Number ____________

pH = ________ Turbidity = ________ Temperature = ________

Conductivity = ________ Dissolved Oxygen = ________ Salinity = ________

Turbidity Meter						

Comments:

Meter Type	Manufacturer	Model Number	Mfg. Serial#	Rental Co. Serial #	Date	Time

Calibrated to Autocal Solution Manufacturer ____________ Lot Number ____________

pH = ________ Turbidity = ________ Temperature = ________

Conductivity = ________ Dissolved Oxygen = ________ Salinity = ________

Turbidity Meter						

Comments:

Meter Type	Manufacturer	Model Number	Mfg. Serial#	Rental Co. Serial #	Date	Time

Calibrated to Autocal Solution Manufacturer ____________ Lot Number ____________

pH = ________ Turbidity = ________ Temperature = ________

Conductivity = ________ Dissolved Oxygen = ________ Salinity = ________

Turbidity Meter						

Comments:

Meter Type	Manufacturer	Model Number	Mfg. Serial#	Rental Co. Serial #	Date	Time

Calibrated to Autocal Solution Manufacturer ____________ Lot Number ____________

pH = ________ Turbidity = ________ Temperature = ________

Conductivity = ________ Dissolved Oxygen = ________ Salinity = ________

Turbidity Meter						

Comments:

Multiparameter Probe Instrument Calibration Form

Meter Type	Manufacturer	Model Number	Mfg. Serial#	Rental Co. Serial #	Date	Time

Calibrated to Autocal Solution Manufacturer ______________ Lot Number ___________

pH = __________ Turbidity = __________ Temperature = ___________

Conductivity = __________ Dissolved Oxygen = __________ Salinity = ___________

Turbidity Meter						

Comments:

Meter Type	Manufacturer	Model Number	Mfg. Serial#	Rental Co. Serial #	Date	Time

Calibrated to Autocal Solution Manufacturer ______________ Lot Number ___________

pH = __________ Turbidity = __________ Temperature = ___________

Conductivity = __________ Dissolved Oxygen = __________ Salinity = ___________

Turbidity Meter						

Comments:

Meter Type	Manufacturer	Model Number	Mfg. Serial#	Rental Co. Serial #	Date	Time

Calibrated to Autocal Solution Manufacturer ______________ Lot Number ___________

pH = __________ Turbidity = __________ Temperature = ___________

Conductivity = __________ Dissolved Oxygen = __________ Salinity = ___________

Turbidity Meter						

Comments:

Meter Type	Manufacturer	Model Number	Mfg. Serial#	Rental Co. Serial #	Date	Time

Calibrated to Autocal Solution Manufacturer ______________ Lot Number ___________

pH = __________ Turbidity = __________ Temperature = ___________

Conductivity = __________ Dissolved Oxygen = __________ Salinity = ___________

Turbidity Meter						

Comments:

Multiparameter Probe Instrument Calibration Form

Meter Type	Manufacturer	Model Number	Mfg. Serial#	Rental Co. Serial #	Date	Time

Calibrated to Autocal Solution Manufacturer ____________ Lot Number ____________

pH = ________ Turbidity = ________ Temperature = ________

Conductivity = ________ Dissolved Oxygen = ________ Salinity = ________

Turbidity Meter						

Comments:

Meter Type	Manufacturer	Model Number	Mfg. Serial#	Rental Co. Serial #	Date	Time

Calibrated to Autocal Solution Manufacturer ____________ Lot Number ____________

pH = ________ Turbidity = ________ Temperature = ________

Conductivity = ________ Dissolved Oxygen = ________ Salinity = ________

Turbidity Meter						

Comments:

Meter Type	Manufacturer	Model Number	Mfg. Serial#	Rental Co. Serial #	Date	Time

Calibrated to Autocal Solution Manufacturer ____________ Lot Number ____________

pH = ________ Turbidity = ________ Temperature = ________

Conductivity = ________ Dissolved Oxygen = ________ Salinity = ________

Turbidity Meter						

Comments:

Meter Type	Manufacturer	Model Number	Mfg. Serial#	Rental Co. Serial #	Date	Time

Calibrated to Autocal Solution Manufacturer ____________ Lot Number ____________

pH = ________ Turbidity = ________ Temperature = ________

Conductivity = ________ Dissolved Oxygen = ________ Salinity = ________

Turbidity Meter						

Comments:

Multiparameter Probe Instrument Calibration Form

Meter Type	Manufacturer	Model Number	Mfg. Serial#	Rental Co. Serial #	Date	Time

Calibrated to Autocal Solution Manufacturer ______________ Lot Number ___________

pH = __________ Turbidity = __________ Temperature = ___________

Conductivity = __________ Dissolved Oxygen = __________ Salinity = ___________

Turbidity Meter						

Comments:

Meter Type	Manufacturer	Model Number	Mfg. Serial#	Rental Co. Serial #	Date	Time

Calibrated to Autocal Solution Manufacturer ______________ Lot Number ___________

pH = __________ Turbidity = __________ Temperature = ___________

Conductivity = __________ Dissolved Oxygen = __________ Salinity = ___________

Turbidity Meter						

Comments:

Meter Type	Manufacturer	Model Number	Mfg. Serial#	Rental Co. Serial #	Date	Time

Calibrated to Autocal Solution Manufacturer ______________ Lot Number ___________

pH = __________ Turbidity = __________ Temperature = ___________

Conductivity = __________ Dissolved Oxygen = __________ Salinity = ___________

Turbidity Meter						

Comments:

Meter Type	Manufacturer	Model Number	Mfg. Serial#	Rental Co. Serial #	Date	Time

Calibrated to Autocal Solution Manufacturer ______________ Lot Number ___________

pH = __________ Turbidity = __________ Temperature = ___________

Conductivity = __________ Dissolved Oxygen = __________ Salinity = ___________

Turbidity Meter						

Comments:

Multiparameter Probe Instrument Calibration Form

Meter Type	Manufacturer	Model Number	Mfg. Serial#	Rental Co. Serial #	Date	Time

Calibrated to Autocal Solution Manufacturer ____________ Lot Number ____________

pH = ____________ Turbidity = ____________ Temperature = ____________

Conductivity = ____________ Dissolved Oxygen = ____________ Salinity = ____________

Turbidity Meter						

Comments:

Meter Type	Manufacturer	Model Number	Mfg. Serial#	Rental Co. Serial #	Date	Time

Calibrated to Autocal Solution Manufacturer ____________ Lot Number ____________

pH = ____________ Turbidity = ____________ Temperature = ____________

Conductivity = ____________ Dissolved Oxygen = ____________ Salinity = ____________

Turbidity Meter						

Comments:

Meter Type	Manufacturer	Model Number	Mfg. Serial#	Rental Co. Serial #	Date	Time

Calibrated to Autocal Solution Manufacturer ____________ Lot Number ____________

pH = ____________ Turbidity = ____________ Temperature = ____________

Conductivity = ____________ Dissolved Oxygen = ____________ Salinity = ____________

Turbidity Meter						

Comments:

Meter Type	Manufacturer	Model Number	Mfg. Serial#	Rental Co. Serial #	Date	Time

Calibrated to Autocal Solution Manufacturer ____________ Lot Number ____________

pH = ____________ Turbidity = ____________ Temperature = ____________

Conductivity = ____________ Dissolved Oxygen = ____________ Salinity = ____________

Turbidity Meter						

Comments:

Multiparameter Probe Instrument Calibration Form

Meter Type	Manufacturer	Model Number	Mfg. Serial#	Rental Co. Serial #	Date	Time

Calibrated to Autocal Solution Manufacturer ____________ Lot Number ________

pH = ________ Turbidity = ________ Temperature = ________

Conductivity = ________ Dissolved Oxygen = ________ Salinity = ________

Turbidity Meter						

Comments:

Meter Type	Manufacturer	Model Number	Mfg. Serial#	Rental Co. Serial #	Date	Time

Calibrated to Autocal Solution Manufacturer ____________ Lot Number ________

pH = ________ Turbidity = ________ Temperature = ________

Conductivity = ________ Dissolved Oxygen = ________ Salinity = ________

Turbidity Meter						

Comments:

Meter Type	Manufacturer	Model Number	Mfg. Serial#	Rental Co. Serial #	Date	Time

Calibrated to Autocal Solution Manufacturer ____________ Lot Number ________

pH = ________ Turbidity = ________ Temperature = ________

Conductivity = ________ Dissolved Oxygen = ________ Salinity = ________

Turbidity Meter						

Comments:

Meter Type	Manufacturer	Model Number	Mfg. Serial#	Rental Co. Serial #	Date	Time

Calibrated to Autocal Solution Manufacturer ____________ Lot Number ________

pH = ________ Turbidity = ________ Temperature = ________

Conductivity = ________ Dissolved Oxygen = ________ Salinity = ________

Turbidity Meter						

Comments:

Multiparameter Probe Instrument Calibration Form

Meter Type	Manufacturer	Model Number	Mfg. Serial#	Rental Co. Serial #	Date	Time

Calibrated to Autocal Solution Manufacturer ______________ Lot Number __________

pH = _________ Turbidity = __________ Temperature = __________

Conductivity = __________ Dissolved Oxygen = _________ Salinity = __________

Turbidity Meter						

Comments:

Meter Type	Manufacturer	Model Number	Mfg. Serial#	Rental Co. Serial #	Date	Time

Calibrated to Autocal Solution Manufacturer ______________ Lot Number __________

pH = _________ Turbidity = __________ Temperature = __________

Conductivity = __________ Dissolved Oxygen = _________ Salinity = __________

Turbidity Meter						

Comments:

Meter Type	Manufacturer	Model Number	Mfg. Serial#	Rental Co. Serial #	Date	Time

Calibrated to Autocal Solution Manufacturer ______________ Lot Number __________

pH = _________ Turbidity = __________ Temperature = __________

Conductivity = __________ Dissolved Oxygen = _________ Salinity = __________

Turbidity Meter						

Comments:

Meter Type	Manufacturer	Model Number	Mfg. Serial#	Rental Co. Serial #	Date	Time

Calibrated to Autocal Solution Manufacturer ______________ Lot Number __________

pH = _________ Turbidity = __________ Temperature = __________

Conductivity = __________ Dissolved Oxygen = _________ Salinity = __________

Turbidity Meter						

Comments:

Multiparameter Probe Instrument Calibration Form

Meter Type	Manufacturer	Model Number	Mfg. Serial#	Rental Co. Serial #	Date	Time

Calibrated to Autocal Solution Manufacturer ____________ Lot Number ____________

pH = ____________ Turbidity = ____________ Temperature = ____________

Conductivity = ____________ Dissolved Oxygen = ____________ Salinity = ____________

Turbidity Meter						

Comments:

Meter Type	Manufacturer	Model Number	Mfg. Serial#	Rental Co. Serial #	Date	Time

Calibrated to Autocal Solution Manufacturer ____________ Lot Number ____________

pH = ____________ Turbidity = ____________ Temperature = ____________

Conductivity = ____________ Dissolved Oxygen = ____________ Salinity = ____________

Turbidity Meter						

Comments:

Meter Type	Manufacturer	Model Number	Mfg. Serial#	Rental Co. Serial #	Date	Time

Calibrated to Autocal Solution Manufacturer ____________ Lot Number ____________

pH = ____________ Turbidity = ____________ Temperature = ____________

Conductivity = ____________ Dissolved Oxygen = ____________ Salinity = ____________

Turbidity Meter						

Comments:

Meter Type	Manufacturer	Model Number	Mfg. Serial#	Rental Co. Serial #	Date	Time

Calibrated to Autocal Solution Manufacturer ____________ Lot Number ____________

pH = ____________ Turbidity = ____________ Temperature = ____________

Conductivity = ____________ Dissolved Oxygen = ____________ Salinity = ____________

Turbidity Meter						

Comments:

Multiparameter Probe Instrument Calibration Form

Meter Type	Manufacturer	Model Number	Mfg. Serial#	Rental Co. Serial #	Date	Time

Calibrated to Autocal Solution Manufacturer ____________ Lot Number ____________

pH = ____________ Turbidity = ____________ Temperature = ____________

Conductivity = ____________ Dissolved Oxygen = ____________ Salinity = ____________

Turbidity Meter						

Comments:

Meter Type	Manufacturer	Model Number	Mfg. Serial#	Rental Co. Serial #	Date	Time

Calibrated to Autocal Solution Manufacturer ____________ Lot Number ____________

pH = ____________ Turbidity = ____________ Temperature = ____________

Conductivity = ____________ Dissolved Oxygen = ____________ Salinity = ____________

Turbidity Meter						

Comments:

Meter Type	Manufacturer	Model Number	Mfg. Serial#	Rental Co. Serial #	Date	Time

Calibrated to Autocal Solution Manufacturer ____________ Lot Number ____________

pH = ____________ Turbidity = ____________ Temperature = ____________

Conductivity = ____________ Dissolved Oxygen = ____________ Salinity = ____________

Turbidity Meter						

Comments:

Meter Type	Manufacturer	Model Number	Mfg. Serial#	Rental Co. Serial #	Date	Time

Calibrated to Autocal Solution Manufacturer ____________ Lot Number ____________

pH = ____________ Turbidity = ____________ Temperature = ____________

Conductivity = ____________ Dissolved Oxygen = ____________ Salinity = ____________

Turbidity Meter						

Comments:

Multiparameter Probe Instrument Calibration Form

Meter Type	Manufacturer	Model Number	Mfg. Serial#	Rental Co. Serial #	Date	Time

Calibrated to Autocal Solution Manufacturer ____________ Lot Number ____________

pH = ____________ Turbidity = ____________ Temperature = ____________

Conductivity = ____________ Dissolved Oxygen = ____________ Salinity = ____________

Turbidity Meter						

Comments:

Meter Type	Manufacturer	Model Number	Mfg. Serial#	Rental Co. Serial #	Date	Time

Calibrated to Autocal Solution Manufacturer ____________ Lot Number ____________

pH = ____________ Turbidity = ____________ Temperature = ____________

Conductivity = ____________ Dissolved Oxygen = ____________ Salinity = ____________

Turbidity Meter						

Comments:

Meter Type	Manufacturer	Model Number	Mfg. Serial#	Rental Co. Serial #	Date	Time

Calibrated to Autocal Solution Manufacturer ____________ Lot Number ____________

pH = ____________ Turbidity = ____________ Temperature = ____________

Conductivity = ____________ Dissolved Oxygen = ____________ Salinity = ____________

Turbidity Meter						

Comments:

Meter Type	Manufacturer	Model Number	Mfg. Serial#	Rental Co. Serial #	Date	Time

Calibrated to Autocal Solution Manufacturer ____________ Lot Number ____________

pH = ____________ Turbidity = ____________ Temperature = ____________

Conductivity = ____________ Dissolved Oxygen = ____________ Salinity = ____________

Turbidity Meter						

Comments:

2-31 Data Gap Waste Handling Dash Card

- **Boeing Project Manager:** Will Ernst
- **Boeing Field Engineer:** Joe Flaherty, Jennifer Parsons, or Fred Wallace
- **Boeing Waste Specialist:** Dan Machut
- **Consultant:** Golder and EPI
- **Contractor:** Cascade Drilling

Contractor Responsibilities

- Forecast type and volume of waste to be generated prior to mobilization, communicate needs to Boeing Field Engineer to ensure proper containers are ordered.
- Call Plant 2 Materials Handling to transport containers to project area.
- Fill containers with generated waste. Once containers are full and properly labeled, place containers on pallet and band containers to prepare them for transportation to designated accumulation area.

Consultant Responsibilities

- Apply appropriate soil container identification number and labels. Initiate "Container Log".
- Collect composite sample of individual container when full or sampling effort is complete. Assign appropriate sample ID per QAPP. Complete COC including program identifier.
- Secure lid and oversee contractors place containers on pallet and band containers for transportation to building 2-120 accumulation area, or alternate location assigned by Boeing Field Engineer.
- Contact Plant 2 Materials Handling for pickup and transportation to designated accumulation area.
- Confirm pickup and transportation to designated accumulation area and verify transport within three days.
- Forward copy of completed container log to Waste Tracking Group by email.

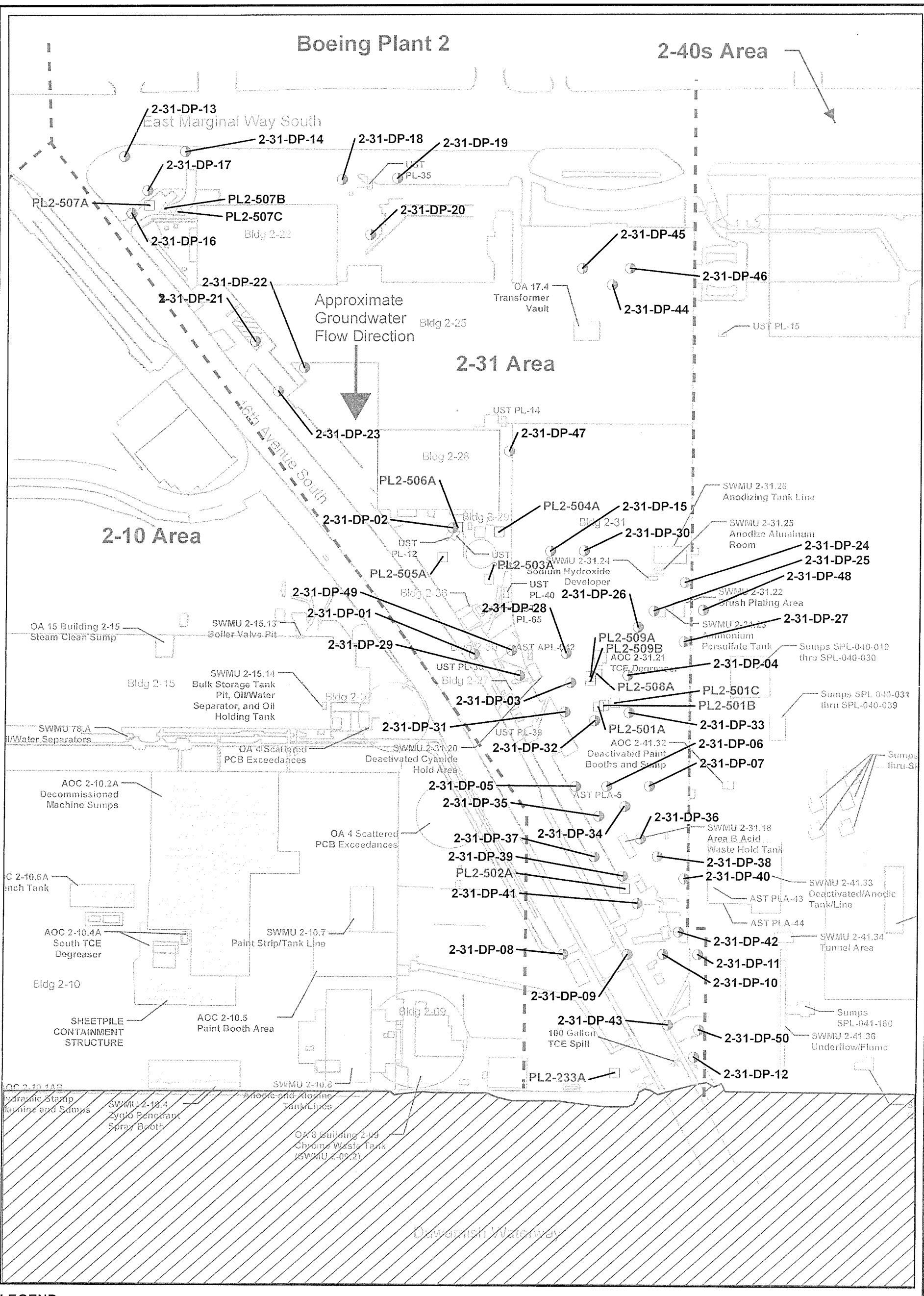
Boeing Field Engineer Responsibilities

- Help identify types of containers needed and determine accumulation area.
- Order necessary containers from Drum Yard.
- Supply container labels and drum identification numbers.

Boeing Waste Specialist Responsibilities

- Create waste characterization profile for waste containers based on composite characterization samples.

Contact List
Will Ernst: 206-655-7724
Joe Flaherty: 206-769-5987
Jennifer Parsons: 206-715-7981
Fred Wallace: 206-930-0461
Dan Machut: 206-655-8344
Plant 2 Materials Handling: 206-655-3266



LEGEND

- New Probe Location
- Wells Sampled for Data Gaps
- New Well Location
- Plant 2 Sub-Area Boundary

0 120

Scale 1" = 120 Feet

Map Projection: Washington State Plane North Zone, NAD 83, Feet

Source: Weston, Golder Associates

2-31 Area
Groundwater and Soil Data Gap
Sampling Locations

Drawn: TH	Revision: 5	Date: Apr 2009	Figure: 2-1

31646008100_MXDs_Area_2_31_RO5.mxd

Golder Associates

Table 2-2
2-31 Area Proposed CMS Data Gaps Sampling
Boeing Plant 2

Location	Sample Interval (ft bgs)	Constituent Groups with 2-31 Area COCs in Groundwater					Other Constituent Groups		Rationale for Selection of Laboratory Analyses
		VOCs	SVOCs (cPAHs)	Total and Dissolved Metals	Total and WAD Cyanide	TPH-G, TPH-Dx, TPH-O	PCBs	Redox Parameters	
GROUNDWATER SAMPLING SUMMARY									
New Wells									
PL2-507B	35 - 45	•	•	• dup diss. only	•		•	•	Constituent list to match PL2-507A.
PL2-507C	75 - 85	•	•	•	•		•	•	Constituent list to match PL2-507A.
Existing Wells									
PL2-233A	10 - 25	•	•	•	•	•		•	PCBs not a GW COC for 2-31 Area. Analyze all 2-31 Area COCs.
PL2-501A	10 - 20	•		•	•			•	Evaluate the soil to groundwater pathway for selected soil COCs from the VOC analyte list. PCBs not a GW COC for 2-31 Area. SVOCs and TPH ND near well. Cyanide detected in the A-level near well.
PL2-501B	40 - 50	•		• MS/MSD diss. Only	•			•	PCBs not a GW COC for 2-31 Area. SVOCs and TPH ND in A-level near well. Cyanide detected in the A-level near well.
PL2-501C	68 - 78	•		• MS/MSD diss. Only				•	PCBs not a GW COC for 2-31 Area. SVOCs and TPH ND in A-level near well. Cyanide will be analyzed at a later time if detected > SL in the B-level.
PL2-502A	8 - 18	•	•	•	•	•	•	•	Evaluate the soil to groundwater pathway for selected soil COCs from the metals and SVOC analyte lists and PCBs. Cyanide detected near well. TPH never analyzed at or near well.
PL2-503A	7 - 17.5	•	•	• MS/MSD diss. Only		•		•	PCBs not a GW COC for 2-31 Area. SVOCs detected near well. Cyanide ND near well. TPH detected in samples from well.
PL2-504A	4.2 - 14.7	•	•	•		•		•	PCBs not a GW COC for 2-31 Area. SVOCs detected near well. Cyanide ND near well. TPH detected in samples from well.
PL2-505A	9 - 24.5	•	•	• dup diss. only		•		•	PCBs not a GW COC for 2-31 Area. SVOCs detected near well. Cyanide ND near well. TPH detected in samples from well.
PL2-507A	8 - 18	•	•	• dup diss. only	•		•	•	Evaluate the soil to groundwater pathway for selected soil COCs from the metals analyte list and PCBs. SVOCs and TPH ND near well.
PL2-508A	9 - 19	Not Sampled							Redundant sampling location with PL2-509A.
PL2-509A	8 - 18	•	•	• dup diss. only	•	•		•	Evaluate the soil to groundwater pathway for selected soil COCs from the metals and SVOC analyte lists and cyanide. PCBs not a GW COC for 2-31 Area. TPH not analyzed near well.
PL2-509B	40 - 50	•		•	•			•	PCBs not a GW COC for 2-31 Area. SVOCs and TPH ND in A-level near well. Cyanide detected in the A-level near well.

BLUE = DUPLICATE
YELLOW = MS/MSD

Table 2-2
2-31 Area Proposed CMS Data Gaps Sampling
Boeing Plant 2

Location	Sample Interval (ft bgs)	Constituent Groups with 2-31 Area COCs in Groundwater					Other Constituent Groups		Rationale for Selection of Laboratory Analyses
		VOCs	SVOCs (cPAHs)	Dissolved Metals	Total and WAD Cyanide	TPH-G, TPH-Dx, TPH-O	PCBs	Redox Parameters	
GROUNDWATER SAMPLING SUMMARY									
Direct Push Locations									
2-31-DP-01	10 - 14	•		•		•			Evaluate the soil to groundwater pathway for TPH.
2-31-DP-02	10 - 14 40 - 44	•	•	•	•	•			Evaluate GW quality at former PL2-506A location. SVOCs detected near probe location. TPH detected in sample from PL2-506A.
2-31-DP-03	10 - 14 40 - 44	•		•	•				Near PL2-509A to determine the lateral extent of VOC impacts from AOC 2-31.21. Evaluate the soil to groundwater pathway for selected soil COCs from the metals and VOC analyte lists and cyanide.
2-31-DP-04	10 - 14 40 - 44	•		•	•				Near PL2-509A to determine the lateral extent of VOC impacts from AOC 2-31.21. Cyanide detected nearby. Evaluate the soil to groundwater pathway for selected soil COCs from the VOC analyte list.
2-31-DP-05	10 - 14 40 - 44	•		•	•		•		Downgradient of PL2-501A to determine extent of VOC impacts from AOC 2-31.21. Cyanide detected nearby. Evaluate the soil to groundwater pathway for PCBs.
2-31-DP-06	10 - 14 40 - 44	•		•	•				Downgradient of PL2-501A to determine extent of VOC impacts from AOC 2-31.21. Cyanide detected nearby.
2-31-DP-07	10 - 14 40 - 44	•		•	•				Downgradient of PL2-501A to determine extent of VOC impacts from AOC 2-31.21. Cyanide detected nearby.
2-31-DP-08	10 - 14 40 - 44	•		•			•		Downgradient of PL2-502A to determine extent of VOC impacts from AOC 2-31.21. Add PCBs Per Ted Norton
2-31-DP-09	10 - 14 40 - 44	•		•					Downgradient of PL2-502A to determine extent of VOC impacts from AOC 2-31.21.
2-31-DP-10	10 - 14 40 - 44	•		•					Downgradient of PL2-502A to determine extent of VOC impacts from AOC 2-31.21.
2-31-DP-11	10 - 14 40 - 44	•		•					Downgradient of PL2-502A to determine extent of VOC impacts from AOC 2-31.21.
2-31-DP-12	10 - 14 40 - 44	•		•	•				Evaluate TCE release downgradient of AOC 2-31.21. Probe data from 1995 and 2002 indicate VOCs in this area. Cyanide detected nearby.
2-31-DP-13	10 - 14	•	•	•	•		•		Evaluate the soil to groundwater pathway for selected soil COCs from the SVOC analyte list and cyanide and PCBs.

BLUE = DUPLICATE
YELLOW = MS/MSD

Table 2-2
2-31 Area Proposed CMS Data Gaps Sampling
Boeing Plant 2

Location	Sample Interval (ft bgs)	Constituent Groups with 2-31 Area COCs in Groundwater					Other Constituent Groups		Rationale for Selection of Laboratory Analyses
		VOCs	SVOCs (cPAHs)	Dissolved Metals	Total and WAD Cyanide	TPH-G, TPH-Dx, TPH-O	PCBs	Redox Parameters	
GROUNDWATER SAMPLING SUMMARY									
Direct Push Locations									
2-31-DP-14	10 - 14	•	•	•	•		•		Evaluate the soil to groundwater pathway for selected soil COCs from the SVOC analyte list and cyanide and PCBs.
2-31-DP-15	10 - 14	•		•			•		Evaluate the soil to groundwater pathway for PCBs.
2-31-DP-16	10 - 14	•		•					Evaluate the soil to groundwater pathway for selected soil COCs from the metals analyte list.
2-31-DP-17	10 - 14	•	•	•	•		•		Evaluate the soil to groundwater pathway for selected soil COCs from the metals analyte list and cyanide.
2-31-DP-18	10 - 14	•		•					Evaluate the soil to groundwater pathway for selected soil COCs from the metals analyte list.
2-31-DP-19	10 - 14	•		•					Evaluate the soil to groundwater pathway for selected soil COCs from the metals analyte list.
2-31-DP-20	10 - 14	•		•					Evaluate the soil to groundwater pathway for selected soil COCs from the metals analyte list.
2-31-DP-21	10 - 14	•		•					Evaluate the soil to groundwater pathway for selected soil COCs from the metals analyte list.
2-31-DP-22	10 - 14	•		•					Evaluate the soil to groundwater pathway for selected soil COCs from the metals analyte list.
2-31-DP-23	10 - 14	•		•					Evaluate the soil to groundwater pathway for selected soil COCs from the metals analyte list.
2-31-DP-24	10 - 14	•		•	•				Evaluate the soil to groundwater pathway for selected soil COCs from the metals analyte list and cyanide.
2-31-DP-25	10 - 14	•		•	•				Evaluate the soil to groundwater pathway for selected soil COCs from the metals analyte list and cyanide.
2-31-DP-26	10 - 14	•		•					Evaluate the soil to groundwater pathway for selected soil COCs from the metals and VOC analyte lists.

BLUE = DUPLICATE
YELLOW = MS/MSD

Table 2-2
2-31 Area Proposed CMS Data Gaps Sampling
Boeing Plant 2

Location	Sample Interval (ft bgs)	Constituent Groups with 2-31 Area COCs in Groundwater					Other Constituent Groups		Rationale for Selection of Laboratory Analyses
		VOCs	SVOCs (cPAHs)	Dissolved Metals	Total and WAD Cyanide	TPH-G, TPH-Dx, TPH-O	PCBs	Redox Parameters	
GROUNDWATER SAMPLING SUMMARY									
Direct Push Locations									
2-31-DP-27	10 - 14	•		•	•				Evaluate the soil to groundwater pathway for selected soil COCs from the metals analyte list and cyanide.
2-31-DP-28	10 - 14	•		•	•		•		Evaluate the soil to groundwater pathway for selected soil COCs from the metals and VOC analyte lists and cyanide and PCBs.
2-31-DP-29	10 - 14	•		•	•	•			Evaluate the soil to groundwater pathway for selected soil COCs from the metals analyte list and cyanide and TPH.
2-31-DP-30	10 - 14	•		•			•		Evaluate the soil to groundwater pathway for PCBs.
2-31-DP-31	10 - 14	•		•			•		Evaluate the soil to groundwater pathway for selected soil COCs from the VOC analyte list and PCBs.
2-31-DP-32	10 - 14	•		•					Evaluate the soil to groundwater pathway for selected soil COCs from the VOC analyte list.
2-31-DP-33	10 - 14	•		•					Evaluate the soil to groundwater pathway for selected soil COCs from the VOC analyte list.
2-31-DP-34	10 - 14	•		•					Evaluate the soil to groundwater pathway for selected soil COCs from the metals analyte list.
2-31-DP-35	10 - 14	•		•					Evaluate the soil to groundwater pathway for selected soil COCs from the metals analyte list.
2-31-DP-36	10 - 14	•		•			•		Evaluate the soil to groundwater pathway for selected soil COCs from the metals analyte list and PCBs.
2-31-DP-37	10 - 14	•		•			•		Evaluate the soil to groundwater pathway for selected soil COCs from the metals analyte list and PCBs.
2-31-DP-38	10 - 14	•	•	•			•		Evaluate the soil to groundwater pathway for selected soil COCs from the metals analyte list and PCBs.
2-31-DP-39	10 - 14 40 - 44 C-level (top of silt)	•	•	•	•	•	•	•	Evaluate the soil to groundwater pathway for selected soil COCs from the metals analyte list and PCBs. Evaluate the potential for chlorinated VOCs at depth. Match analyses for PL2-502A.

BLUE = DUPLICATE
YELLOW = MS/MSD

Table 2-2
2-31 Area Proposed CMS Data Gaps Sampling
Boeing Plant 2

Location	Sample Interval (ft bgs)	Constituent Groups with 2-31 Area COCs in Groundwater					Other Constituent Groups		Rationale for Selection of Laboratory Analyses
		VOCs	SVOCs (cPAHs)	Dissolved Metals	Total and WAD Cyanide	TPH-G, TPH-Dx, TPH-O	PCBs	Redox Parameters	
GROUNDWATER SAMPLING SUMMARY									
Direct Push Locations									
2-31-DP-40	10 - 14	•	•	•					Constituent list to match groundwater list. Evaluate the soil to groundwater pathway for selected soil COCs from the metals analyte list.
2-31-DP-41	10 - 14	•	•	•					Evaluate the soil to groundwater pathway for selected soil COCs from the metals and SVOC analyte lists.
2-31-DP-42	10 - 14	•		•					Evaluate the soil to groundwater pathway for selected soil COCs from the metals analyte list.
2-31-DP-43	10 - 14	•		•					Evaluate the soil to groundwater pathway for selected soil COCs from the VOC analyte list.
2-31-DP-44	10 - 14	•		•			•		Evaluate the soil to groundwater pathway for PCBs.
2-31-DP-45	10 - 14	•		•			•		Evaluate the soil to groundwater pathway for PCBs.
2-31-DP-46	10 - 14	•		•			•		Evaluate the soil to groundwater pathway for PCBs.
2-31-DP-47	10 - 14	•		•			•		Evaluate the soil to groundwater pathway for PCBs.
2-31-DP-48	10 - 14	•		•	•				Evaluate the soil to groundwater pathway for selected soil COCs from the metals analyte list and cyanide.
2-31-DP-49	10 - 14	•		•	•	•			Evaluate the soil to groundwater pathway for selected soil COCs from the metals analyte list and cyanide and TPH.
2-31-DP-50	10 - 14	•		•			•		Evaluate the soil to groundwater pathway for PCBs.

Notes:

NA	Not applicable
PCBs	Polychlorinated biphenyls
SVOCs	Semivolatile organic compounds
TPH	Total petroleum hydrocarbon
VOCs	Volatile organic compounds
Note on sample intervals	For existing wells, sample interval is the installed screen interval. For new wells, sample interval is the planned approximate screened interval. For soil samples, sample interval is the planned sampling depth.

BLUE = DUPLICATE
YELLOW = MS/MSD

2-31 Area Data Gap Groundwater Sampling Field Data

Boeing Plant 2, Seattle/Tukwila, Washington

Station	DP-33		
Sample: ID	2-31-DP-33-1@-W-09,1 (Duplicate)	Date	8/31/09
Field Conditions	INSIDE	Field Team: (Initials)	JB

Purge Information

Well Diameter (in.)	1"
Well Depth (ft.)	14'
Initial Depth to Water (ft.)	
Depth of Water Column	
3 Casing Volumes	
1 Casing Volume	

Purge Method (circle) : Submersible pump / Bladder Pump / (Peristaltic Pump) / Other: :

Start Time	1555
End Time	1730
Total Gallons Purged	4.0 gallons

Time	Gallons	DTW (wells only)	pH	Cond.	NTU	DO	Temp.	ORP	Appearance
1627	1.5		7.92	0.995 mS/L	83.7	0.46 mg/L	19.57	-17.7	yellowish
1630	1.7		7.89	0.993 mS/L	73.0	0.50 mg/L	19.65	-19.1	yellowish
1633	1.9		7.87	0.991 mS/L	59.7	0.51 mg/L	19.69	-20.9	yellowish
1636	2.1		7.86	0.991 mS/L	53.0	0.51 mg/L	19.62	-21.4	slightly yellow
1639	2.3		7.85	0.990 mS/L	47.1	0.51 mg/L	19.53	-20.9	slightly yellow
1642	2.5		7.84	0.988 mS/L	42.0	0.49 mg/L	19.59	-21.8	clear
1645	2.7		7.83	0.987 mS/L	38.5	0.48 mg/L	19.52	-21.8	clear
1648	2.9		7.82	0.985 mS/L	37.8	0.47 mg/L	19.56	-22.0	clear
1651	3.1		7.81	0.984 mS/L	34.4	0.47 mg/L	19.55	-22.1	clear
1658	3.5		7.81	0.983 mS/L	28.9	0.47 mg/L	19.56	-23.1	clear
1701	3.7		7.81	0.982 mS/L	30.3	0.48 mg/L	19.54	-24.0	clear
1704	3.9		7.81	0.981 mS/L	28.3	0.45 mg/L	19.51	-24.3	clear

Sample Information

Sample Method(s) (circle): (Peristaltic pump) / Submersible pump / Bladder Pump / Other

Analysis	Time	Bottle Type	Preservative/Filtration	Comments
VOCs	1710	3-40mL VOAs	HCl	Duplicate @ 1740
Dissolved Metals	1710	2-1L HDPE/500mL	FIELD FILTERED/ HNO_3	Duplicate @ 1740 + Mercury
Total Metals				
Chromium VI				
Total and WAD CN				
TPH-Dx, TPH-Gx				
SVOCs				
PCBs				
Redox				

End Time: 1730

Comments / Exceptions:

Presence of floating product? YES / (NO) Presence of sinking product? YES / (NO)

Notes: Where multiple visits are required to complete sampling, parameters are to be checked prior to sampling for each visit. Enter data under field comments.

2-31 Area Data Gap Groundwater Sampling Field Data

Boeing Plant 2, Seattle/Tukwila, Washington

Station	DP-33	Date	8/31/09
Sample: ID	2-31-DP-33-1Q-W-09,1 (Duplicate)	Field Team: (Initials)	JB
Field Conditions	INSIDE		

Purge Information

Well Diameter (in.)	1"
Well Depth (ft.)	14'
Initial Depth to Water (ft.)	
Depth of Water Column	
3 Casing Volumes	
1 Casing Volume	

Purge Method (circle) : Submersible pump / Bladder Pump / (Peristaltic Pump) / Other: : _____

Start Time	1555
End Time	1730
Total Gallons Purged	4.0 gallons

Time	Gallons	DTW (wells only)	pH	Cond.	NTU	DO	Temp.	ORP	Appearance
1627	1.5		7.92	0.995 mS/L	83.7	0.46 mg/L	19.57	-17.7	yellowish
1630	1.7		7.89	0.993 mS/L	73.0	0.50 mg/L	19.65	-19.1	yellowish
1633	1.9		7.87	0.991 mS/L	59.7	0.51 mg/L	19.69	-20.9	yellowish
1636	2.1		7.86	0.991 mS/L	53.0	0.51 mg/L	19.62	-21.4	slightly yellow
1639	2.3		7.85	0.990 mS/L	47.1	0.51 mg/L	19.53	-20.9	slightly yellow
1642	2.5		7.84	0.988 mS/L	42.0	0.49 mg/L	19.59	-21.8	clear
1645	2.7		7.83	0.987 mS/L	38.5	0.48 mg/L	19.52	-21.8	clear
1648	2.9		7.82	0.985 mS/L	37.8	0.47 mg/L	19.56	-22.0	clear
1651	3.1		7.81	0.984 mS/L	34.4	0.47 mg/L	19.55	-22.1	clear
1658	3.5		7.81	0.993 mS/L	28.9	0.47 mg/L	19.56	-23.1	clear
1701	3.7		7.81	0.982 mS/L	30.3	0.50 mg/L	19.54	-24.0	clear
1704	3.9		7.81	0.981 mS/L	28.3	0.45 mg/L	19.51	-24.3	clear

Sample Information

Sample Method(s) (circle): (Peristaltic pump) / Submersible pump / Bladder Pump / Other

Analysis	Time	Bottle Type	Preservative/Filtration	Comments
VOCs	1710	3-40mL VOAs	HCl	Duplicate @ 1740
Dissolved Metals	1710	2-1L HDPE/500mL	FIELD FILTERED / HNO_3	Duplicate @ 1740 + Mercury
Total Metals				
Chromium VI				
Total and WAD CN				
TPH-Dx, TPH-Gx				
SVOCs				
PCBs				
Redox				

End Time: 1730

Comments / Exceptions:

Presence of floating product? YES / (NO) Presence of sinking product? YES / (NO)

Notes: Where multiple visits are required to complete sampling, parameters are to be checked prior to sampling for each visit. Enter data under field comments.

2-31 Area Data Gap Groundwater Sampling Field Data

Boeing Plant 2, Seattle/Tukwila, Washington

Station	DP-04	Date	8/3/09
Sample: ID	2-31-DP-04-10-U-0	Field Team: (Initials)	JB
Field Conditions	INSIDE		

Purge Information

Well Diameter (in.)	1"
Well Depth (ft.)	14'
Initial Depth to Water (ft.)	
Depth of Water Column	
3 Casing Volumes	
1 Casing Volume	

Purge Method (circle) : Submersible pump / Bladder Pump / (Peristaltic Pump) / Other: : _____

Start Time	1720
End Time	1830
Total Gallons Purged	5.2 gallons

Time	Gallons	DTW (wells only)	pH	Cond.	NTU	DO	Temp.	ORP	Appearance
1747	3.0		7.97	1.154 mS	61.9	0.23 mg/L	19.65	-32.6	yellowish
1750	3.2		7.96	1.152 mS	56.0	0.24 mg/L	19.65	-32.9	yellowish
1753	3.4		7.95	1.152 mS	48.0	6.25 mg/L	19.53	-33.2	Yellowish
1756	3.6		7.93	1.151 mS	43.3	0.25 mg/L	19.57	-33.4	yellowish
1759	3.8		7.92	1.150 mS	38.6	0.26 mg/L	19.95	-32.7	yellowish
1802	4.0		7.91	1.150 mS	35.9	0.25 mg/L	19.52	-32.9	yellowish
1805	4.2		7.89	1.150 mS	32.7	0.25 mg/L	19.57	-33.1	clearing
1808	4.4		7.88	1.150 mS	30.7	0.25 mg/L	19.57	-32.6	clearing
1811	4.6		7.87	1.149 mS	29.2	6.25 mg/L	19.49	-31.2	clearing
1814	4.8		7.86	1.149 mS	27.9	0.23 mg/L	19.51	-31.9	clearing

Sample Information

Sample Method(s) (circle): (Peristaltic pump) / Submersible pump / Bladder Pump / Other

Analysis	Time	Bottle Type	Preservative/Filtration	Comments
VOCs	1820	3-40 mL VOAs	HCl	
Dissolved Metals	1820	1-1L HDPE/1-500mL HDPE	HNO_3/FILTERED FIELD	+Mercury
Total Metals				
Chromium VI				
Total and WAD CN	1820	1-500mL HDPE	NA	
TPH-Dx, TPH-Gx				
SVOCs				
PCBs				
Redox				

End Time 1830

Comments / Exceptions:

Presence of floating product? YES / (NO) Presence of sinking product? YES / (NO)

Notes: Where multiple visits are required to complete sampling, parameters are to be checked prior to sampling for each visit. Enter data under field comments.

2-31 Area Data Gap Groundwater Sampling Field Data

Boeing Plant 2, Seattle/Tukwila, Washington

Station	DP-31	Date	8/31/09
Sample: ID	2-31-DP-31-10-Uwo	Field Team: (Initials)	CB
Field Conditions	Indoor		

Purge Information

Well Diameter (in.)	1"
Well Depth (ft.)	141
Initial Depth to Water (ft.)	
Depth of Water Column	
3 Casing Volumes	
1 Casing Volume	

Purge Method (circle) : Submersible pump / Bladder Pump / (Peristaltic Pump) / Other: :

Start Time	1938
End Time	2040
Total Gallons Purged	40 gallons

Time	Gallons	DTW (wells only)	pH	Cond.	NTU	DO	Temp.	ORP	Appearance
2004 1904	2.3		7.75	0.860 mS/cm	20.1	0.19 mg/L	19.43	-12.4	clear
2007 1907	2.5		7.74	0.857 mS/cm	16.6	0.19 mg/L	19.38	-13.0	clear
2010 1910	2.7		7.73	0.865 mS/cm	13.8	0.17 mg/L	19.37	-13.7	clear
2013 1913	2.9		7.72	0.853 mS/cm	12.0	0.16 mg/L	19.35	-14.1	clear
2016 1916	3.1		7.71	0.850 mS/cm	11.6	0.16 mg/L	19.34	-14.4	clear
2019 1919	3.3		7.70	0.849 mS/cm	10.83	0.16 mg/L	19.33	-14.5	clear
2022 1922	3.5		7.69	0.847 mS/cm	9.97	0.15 mg/L	19.30	-14.5	clear
2025 1925	3.7		7.68	0.847 mS/cm	9.96	0.15 mg/L	19.28	-14.5	clear

Sample Information

Sample Method(s) (circle) (Peristaltic pump) / Submersible pump / Bladder Pump / Other

Analysis	Time	Bottle Type	Preservative/Filtration	Comments
VOCs	2020	3-40mL VOAs	HCl	
Dissolved Metals	2020	1-500mL HDPE/1L HDPE	HNO_3/FIELD FILTERED	+ Mercury
Total Metals				
Chromium VI				
Total and WAD CN				
TPH-Dx, TPH-Gx				
SVOCs				
PCBs	2020	2-1L AG	NA	
Redox				

End Time	2040

Comments / Exceptions:

Presence of floating product? YES / (NO) Presence of sinking product? YES / (NO)

Notes: Where multiple visits are required to complete sampling, parameters are to be checked prior to sampling for each visit. Enter data under field comments.

2-31 Area Data Gap Groundwater Sampling Field Data

Boeing Plant 2, Seattle/Tukwila, Washington

Station	DP-04	Date	8/31/08
Sample: ID	2-31-DP-04-40-U-0	Field Team: (Initials)	JB
Field Conditions	INSIDE		

Purge Information

Well Diameter (in.)	1"
Well Depth (ft.)	44'
Initial Depth to Water (ft.)	
Depth of Water Column	
3 Casing Volumes	
1 Casing Volume	

Purge Method (circle) : Submersible pump / Bladder Pump / (Peristaltic Pump) / Other: : _____

Start Time	2300
End Time	2300
Total Gallons Purged	5.5 gallons

Time	Gallons	DTW (wells only)	pH	Cond.	NTU	DO	Temp.	ORP	Appearance
2122	1.6		8.47	0.702mS/L	2080	0.12mg/L	19.30	-74.3	cloudy
2131	2.2		8.41	0.700mS/L	1757	0.11mg/L	19.30	-76.5	cloudy
2139	2.6		8.35	0.701mS/L	1144	0.10mg/L	19.18	-76.8	cloudy
2148	3.0		8.32	0.700mS/L	916	0.10mg/L	19.07	-76.8	cloudy
2155	3.3		8.31	0.701mS/L	764	0.09mg/L	19.04	-77.3	cloudy
2203	3.5		8.26	0.701mS/L	305	0.05mg/L	19.02	-76.8	cloudy
2210	3.8		8.23	0.702mS/L	273	0.05mg/L	18.96	-76.2	cloudy
2217	4.1		8.22	0.699mS/L	282	0.08mg/L	18.93	-77.2	cloudy
2220	4.3		8.20	0.699mS/L	250	0.09mg/L	18.92	-76.7	cloudy
2223	4.5		8.21	0.698mS/L	268	0.09mg/L	18.86	-77.2	cloudy
2226	4.7		8.19	0.698mS/L	205	0.09mg/L	18.84	-76.8	cloudy
2229	4.9		8.21	0.697mS/L	191	0.09mg/L	18.86	-77.4	cloudy
2232	5.1		8.20	0.703mS/L	198	0.08mg/L	18.86	-77.6	cloudy
2235	5.3		8.21	0.698mS/L	188	0.09mg/L	18.82	-77.2	cloudy

Sample Information

Sample Method(s) (circle): (Peristaltic pump) / Submersible pump / Bladder Pump / Other

Analysis	Time	Bottle Type	Preservative/Filtration	Comments
VOCs	2245	3-40mL VOAs	HCl	
Dissolved Metals	2245	1500mL HDPE/1L HDPE	HNO3/FIELD FILTERED	+ Mercury
Total Metals				
Chromium VI				
Total and WAD CN	2245	1 500mL HDPE	NA	
TPH-Dx, TPH-Gx				
SVOCs				
PCBs				
Redox				

End Time 2300

Comments / Exceptions:

Presence of floating product? YES / (NO) Presence of sinking product? YES / (NO)

Notes: Where multiple visits are required to complete sampling, parameters are to be checked prior to sampling for each visit. Enter data under field comments.

2-31 Area Data Gap Groundwater Sampling Field Data

Boeing Plant 2, Seattle/Tukwila, Washington

Station	DP-03	Date	9/1/09
Sample: ID	2-31-DP-03-10-U-0	Field Team: (Initials)	JB
Field Conditions	Inside		

Purge Information

Well Diameter (in.)	1"
Well Depth (ft.)	14'
Initial Depth to Water (ft.)	
Depth of Water Column	
3 Casing Volumes	
1 Casing Volume	

Purge Method (circle) : Submersible pump / Bladder Pump / ~~Peristaltic Pump~~ / Other: : _____

Start Time	1525
End Time	1630
Total Gallons Purged	2.0 gallon

Time	Gallons	DTW (wells only)	pH	Cond.	NTU	DO	Temp.	ORP	Appearance
1548	1.2		5.40	0.636	81.5	0.48	19.75 °C	-6.1	cloudy
1551	1.3		5.46	0.635	51.9	0.51	19.72 °C	-6.4	cloudy
1554	1.4		5.53	0.634	38.1	0.57	19.71 °C	-6.1	clear
1557	1.5		5.60	0.634	31.6	0.61	19.71 °C	-6.1	clear
1600	1.6		5.65	0.634	28.1	0.61	19.70 °C	-6.5	clear
1603	1.7		5.68	0.633	26.5	0.65	19.68°C	-6.9	clear
1606	1.8		5.71	0.633	27.0	0.65	19.68°C	-6.5	clear

Sample Information

Sample Method(s) (circle): Peristaltic pump / Submersible pump / Bladder Pump / Other

Analysis	Time	Bottle Type	Preservative/Filtration	Comments
VOCs	1615	3-40mL VOAs	HCl	
Dissolved Metals	1615	1-1L HDPE/1-500mL HDPE	HNO_3/Field Filtered	+ Mercury
Total Metals				
Chromium VI				
Total and WAD CN	1615	1-500mL HDPE	NA	
TPH-Dx, TPH-Gx				
SVOCs				
PCBs				
Redox				

End Time 1630

Comments / Exceptions:

Presence of floating product? YES / (NO) Presence of sinking product? YES / (NO)

Slow water recovery

Notes: Where multiple visits are required to complete sampling, parameters are to be checked prior to sampling for each visit. Enter data under field comments.

2-31 Area Data Gap Groundwater Sampling Field Data

Boeing Plant 2, Seattle/Tukwila, Washington

Station	DP-2B	Date	9/1/09
Sample: ID	2-31 - DP-2B - 10-V-0	Field Team: (Initials)	JB
Field Conditions	INSIDE		

Purge Information

Well Diameter (in.)	1"
Well Depth (ft.)	141
Initial Depth to Water (ft.)	
Depth of Water Column	
3 Casing Volumes	
1 Casing Volume	

Purge Method (circle) : Submersible pump / Bladder Pump / (Peristaltic Pump) / Other: : _____

Start Time	1615
End Time	1745
Total Gallons Purged	5.0 gallons

Time	Gallons	DTW (wells only)	pH	Cond.	NTU	DO	Temp.	ORP	Appearance
1643	2.4		6.27	0.700 mS/cm	81.1	0.22 mg/L	21.22 °C	18.8	cloudy
1646	2.6		6.47	0.698 mS/cm	65.5	0.23 mg/L	21.22 °C	16.8	cloudy
1649	2.8		6.46	0.698 mS/cm	58.0	0.25 mg/L	21.24 °C	15.5	cloudy
1652	3.0		6.48	0.697 mS/cm	54.7	0.28 mg/L	21.22 °C	15.1	clearing
1655	3.2		6.47	0.696 mS/cm	42.9	0.31 mg/L	21.23 °C	14.7	clearing
1658	3.4		6.47	0.696 mS/cm	41.0	0.33 mg/L	21.23 °C	14.5	clearing
1701	3.6		6.48	0.696 mS/cm	36.1	0.35 mg/L	21.22 °C	14.4	clearing
1704	3.8		6.48	0.695 mS/cm	34.1	0.34 mg/L	21.21 °C	14.2	clearing
1707	4.0		6.48	0.696 mS/cm	31.8	0.40 mg/L	21.24 °C	14.0	clear
1710	4.2		6.48	0.695 mS/cm	28.9	0.37 mg/L	21.23 °C	14.1	clear
1713	4.4		6.48	0.695 mS/cm	27.4	0.35 mg/L	21.22 °C	14.0	clear
1716	4.6		6.48	0.695 mS/cm	25.9	0.34 mg/L	21.21 °C	14.0	clear
1719	4.8		6.48	0.695 mS/cm	25.1	0.33 mg/L	21.21 °C	14.0	clear

Sample Information

Sample Method(s) (circle): (Peristaltic pump) / Submersible pump / Bladder Pump / Other

Analysis	Time	Bottle Type	Preservative/Filtration	Comments
VOCs	1730	3-40mL VOAs	HCl	
Dissolved Metals	1730	1-500mL HDPE/1L HDPE	HNO3/FIELD FILTERED	+ Mercury
Total Metals				
Chromium VI				
Total and WAD CN	1730	1-500mL HDPE	NA	
TPH-Dx, TPH-Gx				
SVOCs				
PCBs	1730	2-1L AG	NA	
Redox				

End Time 1745

Comments / Exceptions:

Presence of floating product? YES / (NO) Presence of sinking product? YES / (NO)

Notes: Where multiple visits are required to complete sampling, parameters are to be checked prior to sampling for each visit. Enter data under field comments.

2-31 Area Data Gap Groundwater Sampling Field Data

Boeing Plant 2, Seattle/Tukwila, Washington

Station	DP-03	Date	9/1/09
Sample: ID	2-31-DP-03-46-W-0	Field Team: (Initials)	JB
Field Conditions	INSIDE		

Purge Information

Well Diameter (in.)	1"
Well Depth (ft.)	44'
Initial Depth to Water (ft.)	
Depth of Water Column	
3 Casing Volumes	
1 Casing Volume	

Purge Method (circle) : Submersible pump / Bladder Pump / (Peristaltic Pump) / Other: _____

Start Time	1815
End Time	1915
Total Gallons Purged	3.2 gallons

Time	Gallons	DTW (wells only)	pH	Cond.	NTU	DO	Temp.	ORP	Appearance
1840	1.8		7.40	0.480 S/m	185	0.13 mg/L	19.42	-51.3	cloudy
1843	2.0		7.33	0.479 S/m	206	0.13 mg/L	19.36	-54.7	cloudy
1846	2.2		7.24	0.478 S/m	209	0.13 mg/L	19.29	-55.9	cloudy
1849	2.4		7.21	0.478 S/m	222	0.13 mg/L	19.28	-56.7	cloudy
1852	2.6		7.16	0.478 S/m	234	0.13 mg/L	19.24	-57.4	cloudy
1855	2.8		7.15	0.477	218	0.13 mg/L	19.23	-58.0	cloudy

Sample Information

Sample Method(s) (circle): (Peristaltic pump) / Submersible pump / Bladder Pump / Other

Analysis	Time	Bottle Type	Preservative/Filtration	Comments
VOCs	1900	3-40mL VOAs	HCl	
Dissolved Metals	1900	1-1L HDPE/1-500mL HDPE	HNO3/FIELD FILTERED	+ Mercury
Total Metals				
Chromium VI				
Total and WAD CN	1900	1-500mL HDPE	NA	
TPH-Dx, TPH-Gx				
SVOCs				
PCBs				
Redox				

End Time 1915

Comments / Exceptions:

Presence of floating product? YES / (NO) Presence of sinking product? YES / (NO)

Notes: Where multiple visits are required to complete sampling, parameters are to be checked prior to sampling for each visit. Enter data under field comments.

2-31 Area Data Gap Groundwater Sampling Field Data

Boeing Plant 2, Seattle/Tukwila, Washington

Station	DP-06	Date	9/1/09
Sample: ID	2-31-DP-06-10-W-0	Field Team: (Initials)	JB
Field Conditions	INSIDE		

Purge Information

Well Diameter (in.)	1"
Well Depth (ft.)	14'
Initial Depth to Water (ft.)	
Depth of Water Column	
3 Casing Volumes	
1 Casing Volume	

Purge Method (circle) : Submersible pump / Bladder Pump / (Peristaltic Pump) / Other: : _____

Start Time	2005
End Time	2135
Total Gallons Purged	1.5 gallons

Time	Gallons	DTW (wells only)	pH	Cond.	NTU	DO	Temp.	ORP	Appearance
2029	.6		7.11	0.455 S/m	112	0.53 mg/L	20.92°C	13.6	clearing
2032	.7		7.10	0.455 S/m	79.5	0.54 mg/L	20.93°C	13.2	clearing
2035	.8		7.09	0.455 S/m	32.1	0.55 mg/L	20.89°C	13.7	clear
2038	.9		7.08	0.455 S/m	29.6	0.56 mg/L	20.88°C	13.7	clear
2041	1.0		7.07	0.454 S/m	28.1	0.57 mg/L	20.87°C	13.2	clear
2044	1.1		7.07	0.454 S/m	27.1	0.58 mg/L	20.89°C	13.1	clear
2047	1.2		7.06	0.454 S/m	8.86	0.58 mg/L	20.86°C	13.6	clear
					→ Final Turbidity before flow through cell				

Sample Information

Sample Method(s) (circle): (Peristaltic pump) / Submersible pump / Bladder Pump / Other

Analysis	Time	Bottle Type	Preservative/Filtration	Comments
VOCs	2100	3-40mL VOAs	HCl	
Dissolved Metals	2100	1-1L HDPE/1-500mL HDPE	HNO_3/FIELD FILTERED	+Mercury
Total Metals				
Chromium VI				
Total and WAD CN	2100	1-500mL HDPE	NaOH	
TPH-Dx, TPH-Gx				
SVOCs				
PCBs				
Redox				

End Time 2135

Comments / Exceptions:

Presence of floating product? YES / (NO) Presence of sinking product? YES / (NO)

very slow producer for water

Notes: Where multiple visits are required to complete sampling, parameters are to be checked prior to sampling for each visit. Enter data under field comments.

2-31 Area Data Gap Groundwater Sampling Field Data

Boeing Plant 2, Seattle/Tukwila, Washington

Station	DP-36	Date	9/1/09
Sample: ID	2-31-DP-36-10-N-0	Field Team: (Initials)	JB
Field Conditions	INSIDE		

Purge Information

Well Diameter (in.)	1"
Well Depth (ft.)	14'
Initial Depth to Water (ft.)	
Depth of Water Column	
3 Casing Volumes	
1 Casing Volume	

Purge Method (circle) : Submersible pump / Bladder Pump / (Peristaltic Pump) / Other: : _____

Start Time	2105
End Time	2240
Total Gallons Purged	6.8 gallons

Time	Gallons	DTW (wells only)	pH	Cond.	NTU	DO	Temp.	ORP	Appearance
2137	3.0		7.29	0.781mS/cm	709	0.19mg/L	20.14	-23.3	cloudy
2140	3.2		7.30	0.784mS/cm	190	0.13mg/L	20.18	-31.5	cloudy
2146	3.4		7.27	0.785mS/cm	111	0.13mg/L	19.99	-39.2	cloudy
2152	3.6		7.25	0.780mS/cm	86.2	0.14mg/L	19.95	-35.3	cloudy
2156	3.8		7.23	0.774mS/cm	76.6	0.13mg/L	19.81	-31.0	cloudy
2204	4.3		7.24	0.782mS/cm	35.6	0.13mg/L	19.66	-36.9	clear
2207	4.5		7.23	0.786mS/cm	30.2	0.13mg/L	19.64	-39.1	clear
2210	4.7		7.22	0.782mS/cm	24.4	0.13mg/L	19.61	-40.2	clear
2213	4.9		7.22	0.789mS/cm	20.8	0.13mg/L	19.58	-39.9	clear
2216	5.1		7.23	0.788mS/cm	21.3	0.13mg/L	19.58	-43.1	clear
2219	5.3		7.24	0.788mS/cm	20.5	0.13mg/L	19.56	-44.5	clear

Sample Information

Sample Method(s) (circle): (Peristaltic pump) / Submersible pump / Bladder Pump / Other

Analysis	Time	Bottle Type	Preservative/Filtration	Comments
VOCs	2230	3-40mL VOAs	HCl	
Dissolved Metals	2230	1-1L HDPE/1-500mL HDPE	HNO3/FIELD FILTERED	+ Mercury
Total Metals				
Chromium VI				
Total and WAD CN				
TPH-Dx, TPH-Gx				
SVOCs				
PCBs	2230	2-1L AG	NA	
Redox				

End Time 2240

Comments / Exceptions:

Presence of floating product? YES / (NO) Presence of sinking product? YES / (NO)

Notes: Where multiple visits are required to complete sampling, parameters are to be checked prior to sampling for each visit. Enter data under field comments.

2-31 Area Data Gap Groundwater Sampling Field Data

Boeing Plant 2, Seattle/Tukwila, Washington

Station	DP-06	Date	9/1/09
Sample: ID	2-31-DP-06-40-W-0	Field Team: (Initials)	JB
Field Conditions	INSIDE		

Purge Information

Well Diameter (in.)	1"
Well Depth (ft.)	44'
Initial Depth to Water (ft.)	
Depth of Water Column	
3 Casing Volumes	
1 Casing Volume	

Purge Method (circle) : Submersible pump / Bladder Pump / (Peristaltic Pump) / Other: :

Start Time	2240
End Time	2310
Total Gallons Purged	3.5 gallons

Time	Gallons	DTW (wells only)	pH	Cond.	NTU	DO	Temp.	ORP	Appearance
2300	1.2		7.48	0.687 mS/cm	862	0.31 mg/L	19.20 °C	-52.6	cloudy
2308	1.6		7.48	0.685 mS/cm	1089	0.11 mg/L	19.08 °C	-58.0	cloudy
2321	2.0		7.48	0.683 mS/cm	1105	0.12 mg/L	19.08 °C	-62.0	cloudy
2324	2.2		7.49	0.681 mS/cm	930	0.13 mg/L	18.97	-62.6	cloudy
2327	2.4		7.49	0.681 mS/cm	897	0.13 mg/L	18.94	-62.9	cloudy
2330	2.6		7.48	0.680 mS/cm	755	0.13 mg/L	18.95	-63.3	cloudy
2337	2.9		7.42	0.684 mS/cm	649	0.14 mg/L	18.84	-63.1	cloudy
2340	3.1		7.39	0.681 mS/cm	687	0.14 mg/L	18.83	-63.4	cloudy
2343	3.3		7.35	0.685 mS/cm	642	0.14 mg/L	18.80	-63.4	cloudy

Sample Information

Sample Method(s) (circle): (Peristaltic pump) / Submersible pump / Bladder Pump / Other

Analysis	Time	Bottle Type	Preservative/Filtration	Comments
VOCs	2400	3-40mL VOAs	HCl	
Dissolved Metals	2408	1-1L HDPE / 1-500mL HDPE	HNO_3 / FIELD FILTERED	+ Mercury
Total Metals				
Chromium VI				
Total and WAD CN	2409	1-500mL HDPE	NA	
TPH-Dx, TPH-Gx				
SVOCs				
PCBs				
Redox				

End Time 2410

Comments / Exceptions:

Presence of floating product? YES / (NO) Presence of sinking product? YES / (NO)

Notes: Where multiple visits are required to complete sampling, parameters are to be checked prior to sampling for each visit. Enter data under field comments.

2-31 Area Data Gap Groundwater Sampling Field Data

Boeing Plant 2, Seattle/Tukwila, Washington

Station	DP-05	Date	9/2/09
Sample: ID	2-31-DP-05-10-U-0	Field Team: (Initials)	JB
Field Conditions	Sunny & Clear		

Purge Information

Well Diameter (in.)	1"
Well Depth (ft.)	14'
Initial Depth to Water (ft.)	
Depth of Water Column	
3 Casing Volumes	
1 Casing Volume	

Purge Method (circle) : Submersible pump / Bladder Pump / (Peristaltic Pump) / Other: : _____

Start Time	1505
End Time	1615
Total Gallons Purged	35 gallons

Time	Gallons	DTW (wells only)	pH	Cond.	NTU	DO	Temp.	ORP	Appearance
1520	1.8		9.02	0.551 mS/cm	168	0.11 mg/L	20.63	-29.1	cloudy
1530	2.0		8.92	0.505 mS/cm	49.2	0.14 mg/L	20.42	-93.5	clear
1535	2.2		8.90	0.497 mS/cm	44.4	0.13 mg/L	20.83	-98.1	clear
1538	2.4		8.90	0.491 mS/cm	45.5	0.15 mg/L	20.77	-50.4	clear
1541	2.6		8.89	0.491 mS/cm	39.0	0.14 mg/L	20.73	-51.9	clear
1544	2.8		8.90	0.489 mS/cm	34.6	0.14 mg/L	20.71	-51.4	clear
1547	3.0		8.93	0.486 mS/cm	32.3	0.14 mg/L	20.65	-54.5	clear
1550	3.2		8.92	0.493 mS/cm	32.3	0.14 mg/L	20.63	-54.7	clear

Sample Information

Sample Method(s) (circle): (Peristaltic pump) / Submersible pump / Bladder Pump / Other

Analysis	Time	Bottle Type	Preservative/Filtration	Comments
VOCs	1600	3-40mL VOAs	HCl	
Dissolved Metals	1600	1-1L HDPE/1-500mL HDPE	HNO3/FIELD FILTERED	+ Mercury
Total Metals				
Chromium VI				
Total and WAD CN	1600	1-500mL HDPE	NA	
TPH-Dx, TPH-Gx				
SVOCs				
PCBs	1600	1 1L AG	NA	
Redox				

End Time 1615

Comments / Exceptions:

Presence of floating product? YES / (NO) Presence of sinking product? YES / (NO)

Notes: Where multiple visits are required to complete sampling, parameters are to be checked prior to sampling for each visit. Enter data under field comments.

2-31 Area Data Gap Groundwater Sampling Field Data

Boeing Plant 2, Seattle/Tukwila, Washington

Station	DP-34	Date	9/2/09
Sample: ID	2-31-DP-34-10-W-0	Field Team: (Initials)	JB
Field Conditions	IW=10C		

Purge Information

Well Diameter (in.)	1"
Well Depth (ft.)	14'
Initial Depth to Water (ft.)	
Depth of Water Column	
3 Casing Volumes	
1 Casing Volume	

Purge Method (circle) : Submersible pump / Bladder Pump / Peristaltic Pump / Other: : _____

Start Time	1605
End Time	1705
Total Gallons Purged	3.9 gallons

Time	Gallons	DTW (wells only)	pH	Cond.	NTU	DO	Temp.	ORP	Appearance
1633	2.5		7.17	0.538 mS/cm	20.4	0.12 mg/L	19.97 °C	-53.2	clear
1636	2.7		7.16	0.538 mS/cm	17.0	0.13 mg/L	19.97 °C	-54.6	clear
1639	2.9		7.15	0.538 mS/cm	14.7	0.14 mg/L	19.93 °C	-55.5	clear
1642	3.1		7.14	0.537 mS/cm	14.0	0.15 mg/L	19.96	-57.6	clear
1645	3.3		7.13	0.536 mS/cm	12.2	0.15 mg/L	19.94	-58.5	clear
1648	3.5		7.13	0.536 mS/cm	12.1	0.16 mg/L	19.92	-59.0	clear
1651	3.7		7.12	0.536 mS/cm	11.6	0.16 mg/L	19.91	-59.6	clear

Sample Information

Sample Method(s) (circle): Peristaltic pump / Submersible pump / Bladder Pump / Other

Analysis	Time	Bottle Type	Preservative/Filtration	Comments
VOCs	1700	3-40mL VOAs	HCl	
Dissolved Metals	1700	1-1L HDPE/1-500mL HDPE	HNO_3/FIELD FILTERED	+Mercury
Total Metals				
Chromium VI				
Total and WAD CN				
TPH-Dx, TPH-Gx				
SVOCs				
PCBs				
Redox				

End Time: 1705

Comments / Exceptions:

Presence of floating product? YES / NO Presence of sinking product? YES / NO

Notes: Where multiple visits are required to complete sampling, parameters are to be checked prior to sampling for each visit. Enter data under field comments.

2-31 Area Data Gap Groundwater Sampling Field Data

Boeing Plant 2, Seattle/Tukwila, Washington

Station	DP-05	Date	9/2/09
Sample: ID	2-31-DP-05-40-W-0	Field Team: (Initials)	JB
Field Conditions	Sunny & clear		

Purge Information

Well Diameter (in.)	11
Well Depth (ft.)	44'
Initial Depth to Water (ft.)	
Depth of Water Column	
3 Casing Volumes	
1 Casing Volume	

Purge Method (circle) : Submersible pump / Bladder Pump / (Peristaltic Pump) / Other: : _____

Start Time	1730
End Time	1900
Total Gallons Purged	2.0 gallons

Time	Gallons	DTW (wells only)	pH	Cond.	NTU	DO	Temp.	ORP	Appearance
1751	1.0		7.61	0.587 S/L	1251	0.12 mg/L	23.60	-74.9	cloudy
1800	1.1		7.52	0.580 S/L	1033	0.10 mg/L	23.07	-79.9	cloudy
1819	1.4		7.58	0.584 S/L	216	6.13 mg/L	22.72	-89.3	clear
1823	1.5		7.57	0.584 S/L	208	0.13 mg/L	22.55	-90.2	clear
1826	1.6		7.56	0.585 S/L	180	0.13 mg/L	22.48	-91.0	clear
1829	1.7		7.55	0.586 S/L	191	0.14 mg/L	22.44	-91.6	clear
1832	1.8		7.54	0.587 S/L	172	0.14 mg/L	22.40	-92.1	clear

Sample Information

Sample Method(s) (circle): (Peristaltic pump) / Submersible pump / Bladder Pump / Other

Analysis	Time	Bottle Type	Preservative/Filtration	Comments
VOCs	1845	3-40mL VOAs	HCl	
Dissolved Metals	1845	1-1L HDPE/1-500mL HDPE	HNO3/FIELD FILTERED	+ Mercury
Total Metals				
Chromium VI				
Total and WAD CN	1845	1-500mL HDPE	NA	
TPH-Dx, TPH-Gx				
SVOCs				
PCBs				
Redox				

End Time 1900

Comments / Exceptions:

Presence of floating product? YES / (NO) Presence of sinking product? YES / (NO)

Notes: Where multiple visits are required to complete sampling, parameters are to be checked prior to sampling for each visit. Enter data under field comments.

2-31 Area Data Gap Groundwater Sampling Field Data

Boeing Plant 2, Seattle/Tukwila, Washington

Station	DP-11	Date	9/2/09
Sample: ID	2-31-DP-11-10-GW-0	Field Team: (Initials)	JB
Field Conditions	clear		

Purge Information

Well Diameter (in.)	1"
Well Depth (ft.)	14'
Initial Depth to Water (ft.)	
Depth of Water Column	
3 Casing Volumes	
1 Casing Volume	

Purge Method (circle) : Submersible pump / Bladder Pump / (Peristaltic Pump) / Other: :

Start Time	1925
End Time	2020
Total Gallons Purged	3.5 gallons

Time	Gallons	DTW (wells only)	pH	Cond.	NTU	DO	Temp.	ORP	Appearance
1945	2.0		7.68	0.755mS/L	66.2	0.11mg/L	18.96	-53.0	cloudy
1948	2.2		7.67	0.756mS/L	42.0	0.11mg/L	18.95	-54.6	cloudy
1951	2.4		7.66	0.759mS/L	32.0	0.10mg/L	18.96	-56.8	cloudy
1954	2.6		7.67	0.762mS/L	29.9	0.10mg/L	18.94	-58.1	clear
1957	2.8		7.71	0.763mS/L	26.6	0.10mg/L	18.89	-58.8	clear
2000	3.0		7.72	0.764mS/L	25.8	0.10mg/L	18.86	-60.7	clear
2003	3.2		7.72	0.766mS/L	24.1	0.10mg/L	18.87	-61.8	clear

Sample Information

Sample Method(s) (circle): (Peristaltic pump) / Submersible pump / Bladder Pump / Other

Analysis	Time	Bottle Type	Preservative/Filtration	Comments
VOCs	2015	3-40mL VOAs	HCl	
Dissolved Metals	2015	1-1L HDPE/1-500mL HDPE	HNO_3/FIELD FILTERED	+ Mercury
Total Metals				
Chromium VI				
Total and WAD CN				
TPH-Dx, TPH-Gx				
SVOCs				
PCBs				
Redox				

End Time: 2020

Comments / Exceptions:

Presence of floating product? YES / (NO) Presence of sinking product? YES / (NO)

Notes: Where multiple visits are required to complete sampling, parameters are to be checked prior to sampling for each visit. Enter data under field comments.

2-31 Area Data Gap Groundwater Sampling Field Data

Boeing Plant 2, Seattle/Tukwila, Washington

Station	DP-A0	Date	9/2/09
Sample: ID	2-31-DP-~~A0~~-10-4-0	Field Team: (Initials)	JB
Field Conditions	INSIDE		

Purge Information

Well Diameter (in.)	1"
Well Depth (ft.)	14'
Initial Depth to Water (ft.)	
Depth of Water Column	
3 Casing Volumes	
1 Casing Volume	

Purge Method (circle) : Submersible pump / Bladder Pump / (Peristaltic Pump) / Other: :

Start Time	2022
End Time	2115
Total Gallons Purged	30 gallons

Time	Gallons	DTW (wells only)	pH	Cond.	NTU	DO	Temp.	ORP	Appearance
2035	1.5		9.72	1.129 mS/cm	34.3	0.42 mg/L	19.76	-46.5	clear
2038	1.7		7.71	1.124 mS/cm	23.4	0.33 mg/L	19.73	-47.9	clear
2041	1.9		7.70	1.125 mS/cm	20.3	0.23 mg/L	19.71	-49.0	clear
2044	2.1		7.69	1.125 mS/cm	19.6	0.19 mg/L	19.69	-50.0	clear
2047	2.3		7.68	1.125 mS/cm	18.9	0.18 mg/L	19.66	-50.5	clear
2050	2.5		7.67	1.125 mS/cm	20.1	0.17 mg/L	19.64	-51.3	clear

Sample Information

Sample Method(s) (circle) (Peristaltic pump) / Submersible pump / Bladder Pump / Other

Analysis	Time	Bottle Type	Preservative/Filtration	Comments
VOCs	2100	3-40mL VOAs	HCl	
Dissolved Metals	2100	1-1L HDPE/1-500mL HDPE	HNO3/FIELD FILTERED	+Mercury
Total Metals				
Chromium VI				
Total and WAD CN				
TPH-Dx, TPH-Gx				
SVOCs	2100	4-500mL AG	NA	2 SIM PAHs + 2 SVOCs
PCBs				
Redox				

End Time 2115

Comments / Exceptions:

Presence of floating product? YES / (NO) Presence of sinking product? YES / (NO)

Notes: Where multiple visits are required to complete sampling, parameters are to be checked prior to sampling for each visit. Enter data under field comments.

2-31 Area Data Gap Groundwater Sampling Field Data

Boeing Plant 2, Seattle/Tukwila, Washington

Station	DP-11	Date	9/2/09
Sample: ID	2-31-DP-11-40-W-0	Field Team: (Initials)	JB
Field Conditions	Sunny		

Purge Information

Well Diameter (in.)	1"
Well Depth (ft.)	14
Initial Depth to Water (ft.)	
Depth of Water Column	
3 Casing Volumes	
1 Casing Volume	

Purge Method (circle) : Submersible pump / Bladder Pump / ~~Peristaltic Pump~~ / Other: : _____

Start Time	2125
End Time	2240
Total Gallons Purged	4.5 gallons

Time	Gallons	DTW (wells only)	pH	Cond.	NTU	DO	Temp.	ORP	Appearance
2145	2.0		7.96	0.839 mS	1102	0.51 mg/L	18.91	-60.1	cloudy
2203	3.0		7.94	0.829 mS	1179	0.12 mg/L	18.59	-72.9	cloudy
2209	3.4		7.93	0.828 mS	1223	0.11 mg/L	18.59	-79.7	cloudy
2215	3.7		7.94	0.831 mS	1213	0.11 mg/L	18.56	-75.7	cloudy
2218	3.9		7.93	0.832 mS	1270	0.11 mg/L	18.54	-75.9	cloudy
2221	4.1		7.92	0.833 mS	1206	0.11 mg/L	18.52	-76.3	cloudy

Sample Information

Sample Method(s) (circle) Peristaltic pump / Submersible pump / Bladder Pump / Other

Analysis	Time	Bottle Type	Preservative/Filtration	Comments
VOCs	2230	3-40mL VOA	HCl	
Dissolved Metals	2230	1-1L HDPE/1-500mL HDPE	HNO_3/FIELD FILTERED	+ FILTERED Mercury
Total Metals				
Chromium VI				
Total and WAD CN				
TPH-Dx, TPH-Gx				
SVOCs				
PCBs				
Redox				

End Time 2240

Comments / Exceptions:

Presence of floating product? YES / (NO) Presence of sinking product? YES / (NO)

Notes: Where multiple visits are required to complete sampling, parameters are to be checked prior to sampling for each visit. Enter data under field comments.

2-31 Area Data Gap Groundwater Sampling Field Data

Boeing Plant 2, Seattle/Tukwila, Washington

Station	DP-07	Date	9/3/09
Sample: ID	2-31-DP-07-10-W-0	Field Team: (Initials)	JB
Field Conditions	INSIDE		

Purge Information

Well Diameter (in.)	1"
Well Depth (ft.)	14'
Initial Depth to Water (ft.)	
Depth of Water Column	
3 Casing Volumes	
1 Casing Volume	

Purge Method (circle) : Submersible pump / Bladder Pump / (Peristaltic Pump) / Other: : _____

Start Time	1520
End Time	1630
Total Gallons Purged	2.7 gallons

Time	Gallons	DTW (wells only)	pH	Cond.	NTU	DO	Temp.	ORP	Appearance
1549	1.8		7.23	1.113 mS/cm	108.1	0.47 mg/L	21.07	-37.2	clear
1552	1.9		7.38	1.111 mS/cm	37.0	0.47 mg/L	21.06	-39.5	clear
1555	2.0		7.47	1.111 mS/cm	28.0	0.47 mg/L	21.05	-41.0	clear
1558	2.1		7.55	1.110 mS/cm	26.1	0.47 mg/L	21.04	-42.1	clear
1601	2.2		7.60	1.109 mS/cm	25.3	0.48 mg/L	21.03	-43.3	clear
1604	2.3		7.65	1.109 mS/cm	24.8	0.47 mg/L	21.03	-43.9	clear
1607	2.4		7.68	1.109 mS/cm	23.7	0.47 mg/L	21.01	-44.1	clear

Sample Information

Sample Method(s) (circle): (Peristaltic pump) / Submersible pump / Bladder Pump / Other

Analysis	Time	Bottle Type	Preservative/Filtration	Comments
VOCs	1615	3-40mL VOAs	HCl	
Dissolved Metals	1615	1-1L HDPE/1-500mL AG	HNO_3/FIELD FILTERED	+ Mercury
Total Metals				
Chromium VI				
Total and WAD CN	1615	1-500mL HDPE	NA	
TPH-Dx, TPH-Gx				
SVOCs				
PCBs				
Redox				

End Time: 1630

Comments / Exceptions:

Presence of floating product? YES / (NO) Presence of sinking product? YES / (NO)

Notes: Where multiple visits are required to complete sampling, parameters are to be checked prior to sampling for each visit. Enter data under field comments.

2-31 Area Data Gap Groundwater Sampling Field Data

Boeing Plant 2, Seattle/Tukwila, Washington

Station	DP-38	Date	9/3/09
Sample: ID	2-31-DP-38-12-W-0	Field Team: (Initials)	JB
Field Conditions	INSIDE		

Purge Information

Well Diameter (in.)	1"
Well Depth (ft.)	16'
Initial Depth to Water (ft.)	
Depth of Water Column	
3 Casing Volumes	
1 Casing Volume	

Purge Method (circle) : Submersible pump / Bladder Pump / ~~Peristaltic Pump~~ / Other: : _____

Start Time	1630
End Time	1740
Total Gallons Purged	3.6 gallons

Time	Gallons	DTW (wells only)	pH	Cond.	NTU	DO	Temp.	ORP	Appearance
1656	2.2		8.07	0.821 mS/L	103.9	0.39 mg/L	20.61	-42.5	cloudy
1700	2.4		8.08	0.823 mS/L	108.2	0.21 mg/L	20.60	-39.6	cloudy
1703	2.6		8.10	0.823 mS/L	105.1	0.19 mg/L	20.59	-39.0	cloudy
1706	2.8		8.11	0.824 mS/L	98.7	0.24 mg/L	20.60	-39.2	cloudy
1709	3.0		8.11	0.823 mS/L	94.1	0.20 mg/L	20.59	-38.8	cloudy
1712	3.2		8.12	0.825 mS/L	86.2	0.21 mg/L	20.59	-38.3	cloudy
1715	3.4		8.13	0.829 mS/L	90.*	0.22 mg/L	20.59	-39.3	cloudy

Sample Information

Sample Method(s) (circle): (Peristaltic pump) / Submersible pump / Bladder Pump / Other

Analysis	Time	Bottle Type	Preservative/Filtration	Comments
VOCs	1730	3-40mL VOAs	HCl	
Dissolved Metals	1730	MLHDPE/1-500mL HDPE	HNO_3/FIELD FILTERED	+ Mercury
Total Metals				
Chromium VI				
Total and WAD CN				
TPH-Dx, TPH-Gx				
SVOCs	1730	4-500mL AG	NA	2 SIM PAHs + 2 SVOCs
PCBs	1730	2-1L AG	NA	~~2 SIM PAHs + 2 SVOCs~~ QD
Redox				

End Time 1740

Comments / Exceptions:

Presence of floating product? YES / (NO) Presence of sinking product? YES / (NO)

Groundwater producing very slow @ 10'-14'. Collecting sample was impractical. Go down to 12'-16' to collect sample.

Notes: Where multiple visits are required to complete sampling, parameters are to be checked prior to sampling for each visit. Enter data under field comments.

2-31 Area Data Gap Groundwater Sampling Field Data

Boeing Plant 2, Seattle/Tukwila, Washington

Station	DP-07	Date	9/3/09
Sample: ID	2-31-DP-07-40-W-0	Field Team: (Initials)	JB
Field Conditions	SUNNY		

Purge Information

Well Diameter (in.)	1"
Well Depth (ft.)	44'
Initial Depth to Water (ft.)	
Depth of Water Column	
3 Casing Volumes	
1 Casing Volume	

Purge Method (circle) : Submersible pump / Bladder Pump / (Peristaltic Pump) / Other: : _____

Start Time	1735
End Time	1850
Total Gallons Purged	2.5 gallons

Time	Gallons	DTW (wells only)	pH	Cond.	NTU	DO	Temp.	ORP	Appearance
1809	1.2		7.82	0.635 mS/L	705	0.47 mg/L	20.57	-78.1	cloudy
1814	1.4		7.88	0.633 mS/L	631	0.23 mg/L	20.58	-80.7	cloudy
1818	1.6		7.89	0.632 mS/L	608	0.17 mg/L	20.58	-82.0	cloudy
1824	1.8		7.94	0.632 mS/L	192	0.15 mg/L	20.58	-83.8	cloudy
1832	2.0		7.95	0.631 mS/L	204	0.14 mg/L	20.56	-85.0	cloudy
1835	2.2		7.96	0.631 mS/L	187	0.17 mg/L	20.58	-85.8	cloudy

Sample Information

Sample Method(s) (circle): (Peristaltic pump) / Submersible pump / Bladder Pump / Other

Analysis	Time	Bottle Type	Preservative/Filtration	Comments
VOCs	1845	3-40 mL VOAs	HCl	
Dissolved Metals	1845	1-1L HDPE/1-500mL HDPE	HNO3/FIELD FILTERED	+ Mercury
Total Metals				
Chromium VI				
Total and WAD CN	1845	1-500mL HDPE	NA	
TPH-Dx, TPH-Gx				
SVOCs				
PCBs				
Redox				
End Time	1850			

Comments / Exceptions:

Presence of floating product? YES / (NO) Presence of sinking product? YES / (NO)

Notes: Where multiple visits are required to complete sampling, parameters are to be checked prior to sampling for each visit. Enter data under field comments.

2-31 Area Data Gap Groundwater Sampling Field Data

Boeing Plant 2, Seattle/Tukwila, Washington

Station	DP-48	Date	9/3/09
Sample: ID	2-31-DP-48-10-W-0	Field Team: (Initials)	JB
Field Conditions	INSIDE		

Purge Information

Well Diameter (in.)	1"
Well Depth (ft.)	14'
Initial Depth to Water (ft.)	
Depth of Water Column	
3 Casing Volumes	
1 Casing Volume	

Purge Method (circle) : Submersible pump / Bladder Pump / (Peristaltic Pump) / Other: : _____

Start Time	1940
End Time	2035
Total Gallons Purged	2.3 gals

Time	Gallons	DTW (wells only)	pH	Cond.	NTU	DO	Temp.	ORP	Appearance
2000		1.5	8.09	0.677 mS/L	90.8	0.8 mg/L	19.25	-12.6	cloudy
2003		1.6	8.12	0.677 mS/L	64.3	0.38 mg/L	19.20	-14.5	cloudy
2008		1.8	8.14	0.676 mS/L	52.1	0.32 mg/L	19.14 °C	-17.2	cloudy
2011		1.9	8.15	0.675 mS/L	43.1	0.31 mg/L	19.11 °C	-18.2	clear
2015		2.0	8.17	0.675 mS/L	42.2	0.27 mg/L	19.07 °C	-19.2	clear
2018		2.1	8.18	0.675 mS/L	40.5	0.23 mg/L	19.06 °C	-20.0	clear

Sample Information

Sample Method(s) (circle): (Peristaltic pump) / Submersible pump / Bladder Pump / Other

Analysis	Time	Bottle Type	Preservative/Filtration	Comments
VOCs	2030	3-40mL VOAs		
Dissolved Metals	2030	1-1L HDPE / 1-500mL HDPE	HNO_3 / FILTERED - FIELD	+ Mercury
Total Metals				
Chromium VI				
Total and WAD CN	2030	1-500mL HDPE	NaOH	
TPH-Dx, TPH-Gx				
SVOCs				
PCBs				
Redox				

End Time: 2035

Comments / Exceptions:

Presence of floating product? YES / (NO) Presence of sinking product? YES / (NO)

Notes: Where multiple visits are required to complete sampling, parameters are to be checked prior to sampling for each visit. Enter data under field comments.

2-31 Area Data Gap Groundwater Sampling Field Data

Boeing Plant 2, Seattle/Tukwila, Washington

Station	DP-24	Date	9/3/09
Sample: ID	2-31-DP-24-12-W-0	Field Team: (Initials)	JB
Field Conditions	INSIDE		

Purge Information

Well Diameter (in.)	1"
Well Depth (ft.)	16'
Initial Depth to Water (ft.)	
Depth of Water Column	
3 Casing Volumes	
1 Casing Volume	

Purge Method (circle) : Submersible pump / Bladder Pump / (Peristaltic Pump) / Other: : _____

Start Time	2045
End Time	2150
Total Gallons Purged	3.2 gallons

Time	Gallons	DTW (wells only)	pH	Cond.	NTU	DO	Temp.	ORP	Appearance
2116	2.5		9.43	0.815 mS/cm	82.3	0.70 mg/L	21.97	-46.7	cloudy
2120	2.6		9.41	0.815 mS/cm	78.2	0.31 mg/L	21.96	-46.5	cloudy
2123	2.7		9.41	0.814 mS/cm	61.7	0.29 mg/L	21.96	-49.5	cloudy
2126	2.8		9.39	0.814 mS/cm	63.8	0.25 mg/L	21.95	-45.9	clearing
2129	2.9		9.39	0.814 mS/cm	62.9	0.23 mg/L	21.94	-45.4	clearing
2132	3.0		9.39	0.812 mS/cm	59.4	0.21 mg/L	21.95	-46.5	clearing

Sample Information

Sample Method(s) (circle): (Peristaltic pump) / Submersible pump / Bladder Pump / Other

Analysis	Time	Bottle Type	Preservative/Filtration	Comments
VOCs	2140	3-40mL VOAs	HCl	
Dissolved Metals	2140	1-1L HDPE/1-500mL HDPE	HNO_3/FIELD FILTERED	
Total Metals				
Chromium VI				
Total and WAD CN	2146	1-500mL HDPE	NA	
TPH-Dx, TPH-Gx				
SVOCs				
PCBs				
Redox				

End Time 2150

Comments / Exceptions:

Presence of floating product? YES / (NO) Presence of sinking product? YES / (NO)

Notes: Where multiple visits are required to complete sampling, parameters are to be checked prior to sampling for each visit. Enter data under field comments.

2-31 Area Data Gap Groundwater Sampling Field Data

Boeing Plant 2, Seattle/Tukwila, Washington

Station	DP-47	Date	9/8/09
Sample: ID	2-31-DP-47-10-W-0	Field Team: (Initials)	JB
Field Conditions	Clear & Sunny		

Purge Information

Well Diameter (in.)	1"
Well Depth (ft.)	141
Initial Depth to Water (ft.)	
Depth of Water Column	
3 Casing Volumes	
1 Casing Volume	

Purge Method (circle) : Submersible pump / Bladder Pump / (Peristaltic Pump) / Other: : _____

Start Time	1435
End Time	1610
Total Gallons Purged	4.0 gallons

Time	Gallons	DTW (wells only)	pH	Cond.	NTU	DO	Temp.	ORP	Appearance
1510	2.4		7.74	0.529 S	211	0.32 mg/L	18.90 °C	5.2	cloudy
1518	2.7		7.99	0.525 mS	150	0.20 mg/L	18.86 °C	-8.4	cl.
1527	3.0		8.25	0.526 mS	125	6.17 mg/L	18.67 °C	-15.7	cloudy
1532	3.3		8.33	0.523 mS	106.1	0.21 mg/L	18.76 °C	-18.5	cloudy
1540	3.6		8.49	0.529 mS	84.8	0.22 mg/L	18.56 °C	-27.9	clearing
1543	3.7		8.53	0.522 mS	86.1	0.23 mg/L	18.62 °C	-31.2	cleaning
1546	3.8		8.57	0.523 mS	84.3	0.23 mg/L	18.66 °C	-33.7	clearing

Sample Information

Sample Method(s) (circle): (Peristaltic pump) / Submersible pump / Bladder Pump / Other

Analysis	Time	Bottle Type	Preservative/Filtration	Comments
VOCs	1550	3-40 mL VOAs	HCl	
Dissolved Metals	1550	1-1L HDPE / 1-500 mL HDPE	HNO_3 / Field Filtered	+ Mercury
Total Metals				
Chromium VI				
Total and WAD CN				
TPH-Dx, TPH-Gx				
SVOCs				
PCBs	1550	2-1L AG	NA	
Redox				

End Time 1610

Comments / Exceptions:

Presence of floating product? YES / (NO) Presence of sinking product? YES / (NO)

Notes: Where multiple visits are required to complete sampling, parameters are to be checked prior to sampling for each visit. Enter data under field comments.

2-31 Area Data Gap Groundwater Sampling Field Data

Boeing Plant 2, Seattle/Tukwila, Washington

Station	DP-49	Date	9/8/09
Sample: ID	2-31-DP-49-10-W-0	Field Team: (Initials)	JR
Field Conditions	Sunny & Clear		

Purge Information

Well Diameter (in.)	1"
Well Depth (ft.)	14'
Initial Depth to Water (ft.)	
Depth of Water Column	
3 Casing Volumes	
1 Casing Volume	

Purge Method (circle) : Submersible pump / Bladder Pump / (Peristaltic Pump) / Other: : _____

Start Time	1545
End Time	1650
Total Gallons Purged	4.0 gallons

Time	Gallons	DTW (wells only)	pH	Cond.	NTU	DO	Temp.	ORP	Appearance
1626	3.0		8.74	0.514 mS	19.2	0.53 mg/L	19.45	-25.6	clear
1630	3.2		8.68	0.513 mS	11.9	0.43 mg/L	19.34	-28.0	clear
1633	3.4		8.68	0.512 mS	10.38	0.40 mg/L	19.38	-28.5	clear
1636	3.6		8.68	0.512 mS	9.84	0.38 mg/L	19.41	-31.0	clear

Sample Information

Sample Method(s) (circle): Peristaltic pump / Submersible pump / Bladder Pump / Other

Analysis	Time	Bottle Type	Preservative/Filtration	Comments
VOCs	1640	3-40mL VOAs	HCl	
Dissolved Metals	1640	1-1L HDPE/1-500mL HDPE	HNO3 / FIELD FILTERED	+ Mercury
Total Metals				
Chromium VI				
Total and WAD CN	1640	1-500-L HDPE	NA	
TPH-Dx, TPH-Gx	1640	2-40-L VOAs / 2-500mL AG	HCl on VOAs	
SVOCs				
PCBs				
Redox				

End Time 1650

Comments / Exceptions:

Presence of floating product? YES / (NO) Presence of sinking product? YES / (NO)

Notes: Where multiple visits are required to complete sampling, parameters are to be checked prior to sampling for each visit. Enter data under field comments.

2-31 Area Data Gap Groundwater Sampling Field Data

Boeing Plant 2, Seattle/Tukwila, Washington

Station	DP-29	Date	9/8/09
Sample: ID	2-31-DP-29-10-U-0	Field Team: (Initials)	JB
Field Conditions	Sunny + Clear		

Purge Information

Well Diameter (in.)	1"
Well Depth (ft.)	14'
Initial Depth to Water (ft.)	
Depth of Water Column	
3 Casing Volumes	
1 Casing Volume	

Purge Method (circle) : Submersible pump / Bladder Pump / (Peristaltic Pump) / Other: : _____

Start Time	1645
End Time	1750
Total Gallons Purged	4.0 gallons

Time	Gallons	DTW (wells only)	pH	Cond.	NTU	DO	Temp.	ORP	Appearance
1715	2.4		7.95	0.660 S	46.2	0.21 mg/L	19.39	-31.2	clear
1718	2.6		7.94	0.659 S	41.0	0.22 mg/L	19.49	-30.7	clear
1721	2.8		7.95	0.658 S	28.0	0.25 mg/L	19.56	-31.7	clear
1727	3.2		7.97	0.658 S	28.0	0.25 mg/L	19.59	-32.6	clear
1730	3.4		7.97	0.658 S	26.8	0.26 mg/L	19.56	-34.1	clear

Sample Information

Sample Method(s) (circle): (Peristaltic pump) / Submersible pump / Bladder Pump / Other

Analysis	Time	Bottle Type	Preservative/Filtration	Comments
VOCs	1730	3-40mL VOAs	HCl	
Dissolved Metals	1730	1-1L HDPE/1-500mL HDPE	HNO_3/FIELD FILTERED	+ Mercury
Total Metals				
Chromium VI				
Total and WAD CN	1730	1-500mL HDPE	NA	
TPH-Dx, TPH-Gx	1730	2-500mL AG/2-40mL VOAs	NA / HCl	
SVOCs				
PCBs				
Redox				

End Time 1750

Comments / Exceptions:

Presence of floating product? YES / (NO) Presence of sinking product? YES / (NO)

Notes: Where multiple visits are required to complete sampling, parameters are to be checked prior to sampling for each visit. Enter data under field comments.

2-31 Area Data Gap Groundwater Sampling Field Data

Boeing Plant 2, Seattle/Tukwila, Washington

Station	DP-37	Date	9/8/09
Sample: ID	2-31-DP-37-10-N-0	Field Team: (Initials)	JB
Field Conditions	Cloudy / early evening		

Purge Information

Well Diameter (in.)	1"
Well Depth (ft.)	14'
Initial Depth to Water (ft.)	
Depth of Water Column	
3 Casing Volumes	
1 Casing Volume	

Purge Method (circle) : Submersible pump / Bladder Pump / (Peristaltic Pump) / Other: :

Start Time	1745
End Time	1910
Total Gallons Purged	4.5 gallons

Time	Gallons	DTW (wells only)	pH	Cond.	NTU	DO	Temp.	ORP	Appearance
1819	2.2		8.52	0.649 S/m	155	0.26 mg/L	17.60	-64.1	cloudy
1826	2.5		8.57	0.642 S/m	102.6	0.15 mg/L	17.54	-72.0	cloudy
1844	3.6		8.54	0.638 S/m	55.8	0.13 mg/L	17.42	-78.2	clearing
1847	3.8		8.48	0.637 mS/cm	47.1	0.13 mg/L	17.35	-81.9	clear
1850	4.0		8.47	0.637 mS/cm	47.2	0.13 mg/L	17.32	-82.7	clear
1853	4.2		8.47	0.652 mS/cm	47.8	0.13 mg/L	17.31	-83.8	clear

Sample Information

Sample Method(s) (circle): (Peristaltic pump) / Submersible pump / Bladder Pump / Other

Analysis	Time	Bottle Type	Preservative/Filtration	Comments
VOCs	1900	3-40mL VOAs	HCl	
Dissolved Metals	1900	1-1L HDPE/1-500mL HDPE	HNO_3/FIELD FILTERED	+ Mercury
Total Metals				
Chromium VI				
Total and WAD CN				
TPH-Dx, TPH-Gx				
SVOCs				
PCBs	1900	2-1L AG	NA	
Redox				

End Time 1910

Comments / Exceptions:

Presence of floating product? YES / (NO) Presence of sinking product? YES / (NO)

Notes: Where multiple visits are required to complete sampling, parameters are to be checked prior to sampling for each visit. Enter data under field comments.

2-31 Area Data Gap Groundwater Sampling Field Data

Boeing Plant 2, Seattle/Tukwila, Washington

Station	DP-35	Date	9/8/09
Sample: ID	2-31-DP-35-10-L-0	Field Team: (Initials)	JB
Field Conditions	Cloudy / Evening		

Purge Information

Well Diameter (in.)	1"
Well Depth (ft.)	14'
Initial Depth to Water (ft.)	
Depth of Water Column	
3 Casing Volumes	
1 Casing Volume	

Purge Method (circle) : Submersible pump / Bladder Pump / (Peristaltic Pump) / Other: : _____

Start Time	1900
End Time	2016
Total Gallons Purged	2.5 gallons

Time	Gallons	DTW (wells only)	pH	Cond.	NTU	DO	Temp.	ORP	Appearance
1935	2.0		8.47	0.519 S/L	38.4	0.32 mg/L	17.93	-30.9	clear
1938	2.1		8.46	0.518 S/L	31.9	0.32 mg/L	17.89	-30.4	clear
1943	2.2		8.48	0.518 S/L	23.7	0.31 mg/L	17.80	-29.5	clear
1947	2.3		8.48	0.517 S/L	20.0	0.31 mg/L	17.73	-29.0	clear
1950	2.4		8.48	0.517 S/L	18.64 *	0.31 mg/L	17.71	-28.9	clear
					↳ Final	turbidity	measured with	no flow-through	cell

Sample Information

Sample Method(s) (circle): (Peristaltic pump) / Submersible pump / Bladder Pump / Other

Analysis	Time	Bottle Type	Preservative/Filtration	Comments
VOCs	2000	3-40mL VOAs	HCl	
Dissolved Metals	2000	1-1L HDPE/150ml HNO3	HNO_3/Field Filtered	+ Mercury
Total Metals				
Chromium VI				
Total and WAD CN				
TPH-Dx, TPH-Gx				
SVOCs				
PCBs				
Redox				

End Time: 2016

Comments / Exceptions:

Presence of floating product? YES / (NO) Presence of sinking product? YES / (NO)

Notes: Where multiple visits are required to complete sampling, parameters are to be checked prior to sampling for each visit. Enter data under field comments.

2-31 Area Data Gap Groundwater Sampling Field Data

Boeing Plant 2, Seattle/Tukwila, Washington

Station	DP-41	Date	9/8/09
Sample: ID	2-31-DP-41-10-W-0	Field Team: (Initials)	JB
Field Conditions	Evening / Clear		

Purge Information

Well Diameter (in.)	1"
Well Depth (ft.)	141
Initial Depth to Water (ft.)	
Depth of Water Column	
3 Casing Volumes	
1 Casing Volume	

Purge Method (circle) : Submersible pump / Bladder Pump / (Peristaltic Pump) / Other: :

Start Time	2015
End Time	2100
Total Gallons Purged	3.0 gallons

Time	Gallons	DTW (wells only)	pH	Cond.	NTU	DO	Temp.	ORP	Appearance
2034	2.4		8.55	0.454 S/L	41.2	0.20 mg/L	17.91	-42.5	clear
2037	2.6		8.59	0.455 S	33.1	0.11 mg/L	17.90	-50.0	clear
2040	2.8		8.58	0.454 S	26.4	0.16 mg/L	17.89	-52.3	clear
2043	3.0		8.59	0.455 S	25.0	0.19 mg/L	17.87	-55.3	clear
2046	3.2		8.60	0.454 S	21.1	0.16 mg/L	17.85	-57.5	clear
2049	3.4		8.61	0.454 S	19.9	0.16 mg/L	17.82	-60.0	clear
2052	3.6		8.61	0.454 S/L	20.4	0.16 mg/L	17.81	-60.9	clear

Sample Information

Sample Method(s) (circle): (Peristaltic pump) / Submersible pump / Bladder Pump / Other

Analysis	Time	Bottle Type	Preservative/Filtration	Comments
VOCs	2100	3-40mL VOAs	HCl	
Dissolved Metals	2100	1-1L HDPE/1-500mL HDPE	HNO3/Field filtered	+ Mercury
Total Metals				
Chromium VI				
Total and WAD CN				
TPH-Dx, TPH-Gx				
SVOCs	2100	4-500mL AG	NA	2 PAH (SIM) + 2 SVOCs
PCBs				
Redox				

End Time 2110

Comments / Exceptions:

Presence of floating product? YES / (NO) Presence of sinking product? YES / (NO)

Notes: Where multiple visits are required to complete sampling, parameters are to be checked prior to sampling for each visit. Enter data under field comments.

2-31 Area Data Gap Groundwater Sampling Field Data

Boeing Plant 2, Seattle/Tukwila, Washington

Station	DP-43	Date	9/8/09
Sample: ID	2-31-DP-43-10-W-0	Field Team: (Initials)	JB
Field Conditions	Clear / Evening		

Purge Information

Well Diameter (in.)	1"
Well Depth (ft.)	14'
Initial Depth to Water (ft.)	
Depth of Water Column	
3 Casing Volumes	
1 Casing Volume	

Purge Method (circle) : Submersible pump / Bladder Pump / (Peristaltic Pump) / Other: _____

Start Time	2105
End Time	2210
Total Gallons Purged	4.2 gallons

Time	Gallons	DTW (wells only)	pH	Cond.	NTU	DO	Temp.	ORP	Appearance
2124	2.6		8.51	0.671 mS	74.7	0.01 g/L	16.67	12.4	cloudy
2127	2.8		8.46	0.672 S	67.6	0.10 g/L	16.65	12.7	cloudy
2130	3.0		8.47	0.682	53.2	0.10 g/L	16.64	13.2	cleaning
2133	3.2		8.48	0.673 S	48.3	0.10 g/L	16.64	13.9	cleaning
2136	3.4		8.47	0.674 S	46.3	0.10 g/L	16.61	14.4	cleaning
2139	3.6		8.46	0.674 S	39.7	0.11 g/L	16.59	14.5	clear
2142	3.8		8.46	0.675 S	41.6	0.11 g/L	16.56	15.0	clear
2145	4.0		8.46	0.675 S	38.7	0.11 g/L	16.57	15.3	clear

Sample Information

Sample Method(s) (circle): (Peristaltic pump) / Submersible pump / Bladder Pump / Other

Analysis	Time	Bottle Type	Preservative/Filtration	Comments
VOCs	2200	3-40 mL VOAs	HCl	
Dissolved Metals	2200	1-1L HDPE/1-500mL HDPE	HNO_3/Field Filtered	+ Mercury
Total Metals				
Chromium VI				
Total and WAD CN				
TPH-Dx, TPH-Gx				
SVOCs				
PCBs				
Redox				

End Time 2210

Comments / Exceptions:

Presence of floating product? YES / (NO) Presence of sinking product? YES / (NO)

Notes: Where multiple visits are required to complete sampling, parameters are to be checked prior to sampling for each visit. Enter data under field comments.

2-31 Area Data Gap Groundwater Sampling Field Data

Boeing Plant 2, Seattle/Tukwila, Washington

Station	DP-50	Date	9/9/09
Sample: ID	2-31-DP-50	Field Team: (Initials)	~~JB~~
Field Conditions	Inside		

Purge Information

Well Diameter (in.)	1"
Well Depth (ft.)	14'
Initial Depth to Water (ft.)	
Depth of Water Column	
3 Casing Volumes	
1 Casing Volume	

Purge Method (circle) : Submersible pump / ~~Bladder Pump~~ / ~~Peristaltic Pump~~

Other: : _____

Start Time	1330
End Time	1440
Total Gallons Purged	3.5 gallons

Time	Gallons	DTW (wells only)	pH	Cond.	NTU	DO	Temp.	ORP	Appearance
1401	2.2		6.87	4.539	32.6	0.96 mg/L	16.26	170.1	clear
1406	2.5		7.00	4.529	20.7	0.45 mg/L	16.18	165.5	clear
1410	2.7		7.09	4.503	16.4	0.45 mg/L	16.12	162.2	clear
1413	2.9		7.12	4.498	15.0	0.44 mg/L	16.12	161.1	clear
1416	3.1		7.17	4.494	15.1	0.44 mg/L	16.08	159.2	clear
1419	3.3		7.19	4.490	11.5	0.43 mg/L	16.08	157.5	clear
1422	3.5		7.21	4.488	9.76	0.43 mg/L	16.08	156.0	clear

Sample Information

Sample Method(s) (circle): Peristaltic pump / Submersible pump / Bladder Pump / Other

Analysis	Time	Bottle Type	Preservative/Filtration	Comments
VOCs	1430	3-40mL VOAs	(+Cl)	
Dissolved Metals	1430	1-HDPE/1-500mL HDPE	HNO_3/Field Filtered	+Mercury
Total Metals				
Chromium VI				
Total and WAD CN				
TPH-Dx, TPH-Gx				
SVOCs				
PCBs	1430	2-1L AG	NA	
Redox				

End Time 1440

Comments / Exceptions:

Presence of floating product? YES / NO Presence of sinking product? ~~YES~~ / NO

Notes: Where multiple visits are required to complete sampling, parameters are to be checked prior to sampling for each visit. Enter data under field comments.

2-31 Area Data Gap Groundwater Sampling Field Data

Boeing Plant 2, Seattle/Tukwila, Washington

Station	DP-26	Date	9/9/09
Sample: ID	2-31-DP-26-10-U-0	Field Team: (Initials)	JB
Field Conditions	INSIDE		

Purge Information

Well Diameter (in.)	1"
Well Depth (ft.)	14'
Initial Depth to Water (ft.)	
Depth of Water Column	
3 Casing Volumes	
1 Casing Volume	

Purge Method (circle) : Submersible pump / Bladder Pump / (Peristaltic Pump) / Other: : _____

Start Time	1620
End Time	1720
Total Gallons Purged	3.5 gallons

Time	Gallons	DTW (wells only)	pH	Cond.	NTU	DO	Temp.	ORP	Appearance
1646	2.0		9.00	1.615 S/m	82.3	0.18 mg/L	20.33	-15.8	yellow / cloudy
1652	2.3		8.99	1.619 S/m	51.9	0.21 mg/L	20.41	-15.3	yellow / cloudy
1656	2.5		8.99	1.618 S/m	25.7	0.21 mg/L	20.38	-17.0	yellow
1659	2.7		8.99	1.620 S/m	21.1	0.22 mg/L	20.37	-17.1	yellow
1702	2.9		9.01	1.622 S/m	16.9	0.23 mg/L	20.37	-18.5	yellow
1705	3.1		9.00	1.620 S/m	16.4	0.24 mg/L	20.36	-18.4	yellow
1708	3.3		9.01	1.620 S/m	17.1	0.24 mg/L	20.36	-19.0	yellow

Sample Information

Sample Method(s) (circle): (Peristaltic pump) / Submersible pump / Bladder Pump / Other

Analysis	Time	Bottle Type	Preservative/Filtration	Comments
VOCs	1715	3-40 mL VOAs	HCl	
Dissolved Metals	1715	1-1L HDPE/1-500 mL HDPE	HNO_3/FIELD FILTERED	
Total Metals				
Chromium VI				
Total and WAD CN				
TPH-Dx, TPH-Gx				
SVOCs				
PCBs				
Redox				

End Time 1720

Comments / Exceptions:

Presence of floating product? YES / (NO) Presence of sinking product? YES / (NO)

Notes: Where multiple visits are required to complete sampling, parameters are to be checked prior to sampling for each visit. Enter data under field comments.

2-31 Area Data Gap Groundwater Sampling Field Data

Boeing Plant 2, Seattle/Tukwila, Washington

Station	DP-25	Date	8/9/09
Sample: ID	2-31-DP-25-10-U-0	Field Team: (Initials)	JB
Field Conditions	Inside		

Purge Information

Well Diameter (in.)	1"
Well Depth (ft.)	14'
Initial Depth to Water (ft.)	
Depth of Water Column	
3 Casing Volumes	
1 Casing Volume	

Purge Method (circle) : Submersible pump / Bladder Pump / (Peristaltic Pump) / Other: :

Start Time	1740
End Time	1855
Total Gallons Purged	3.5 gallons

Time	Gallons	DTW (wells only)	pH	Cond.	NTU	DO	Temp.	ORP	Appearance
1815	2.0		9.27	0.510 S/L	81.0	0.15 mg/L	20.51	-2.0	cloudy
1818	2.2		9.26	0.510 S/L	67.3	0.14 mg/L	20.39	-3.6	cloudy
1825	2.5		9.24	0.509 S/L	60.8	0.13 mg/L	20.36	-4.5	clear
1829	2.7		9.25	0.508 S/L	41.7	0.13 mg/L	20.35	-5.4	clear
1832	2.9		9.31	0.508 S/L	38.7	0.13 mg/L	20.33	-7.1	clear
1835	3.1		9.28	0.508 S/L	39.9	0.13 mg/L	20.33	-7.6	clear

Sample Information

Sample Method(s) (circle): (Peristaltic pump) / Submersible pump / Bladder Pump / Other

Analysis	Time	Bottle Type	Preservative/Filtration	Comments
VOCs	1845	3-40 mL VOAs	HCl	
Dissolved Metals	1845	1-1L HDPE / 1-500 mL HDPE	HNO3 + FIELD FILTERED	+Mercury
Total Metals				
Chromium VI				
Total and WAD CN	1845	1-500 mL HDPE	~~MUST FIELD FILTERED~~ JB NA	~~+Mercury~~ JB
TPH-Dx, TPH-Gx				
SVOCs				
PCBs				
Redox				

End Time 1855

Comments / Exceptions:

Presence of floating product? YES / (NO) Presence of sinking product? YES / (NO)

Notes: Where multiple visits are required to complete sampling, parameters are to be checked prior to sampling for each visit. Enter data under field comments.

2-31 Area Data Gap Groundwater Sampling Field Data

Boeing Plant 2, Seattle/Tukwila, Washington

Station	DP-45	Date	9/9/09
Sample: ID	2-31-DP-45-10-W-0	Field Team: (Initials)	JB
Field Conditions	Clear / Early evening		

Purge Information

Well Diameter (in.)	1"
Well Depth (ft.)	14'
Initial Depth to Water (ft.)	
Depth of Water Column	
3 Casing Volumes	
1 Casing Volume	

Purge Method (circle) : Submersible pump / Bladder Pump / (Peristaltic Pump) / Other: : ____________

Start Time	1910
End Time	1955
Total Gallons Purged	2.0 gallons

Time	Gallons	DTW (wells only)	pH	Cond.	NTU	DO	Temp.	ORP	Appearance
1930	1.2		8.88	0.551mS/L	5.88	0.08mg/L	21.11	-35.8	clear
1933	1.4		8.84	0.552mS/L	4.23	0.08mg/L	21.09	-42.6	clear
1936	1.6		8.83	0.552mS/L	4.34	0.08mg/L	21.08	-48.4	clear
1939	1.8		8.84	0.553mS/L	2.92	0.08mg/L	21.05	-52.5	clear

Sample Information

Sample Method(s) (circle): (Peristaltic pump) / Submersible pump / Bladder Pump / Other

Analysis	Time	Bottle Type	Preservative/Filtration	Comments
VOCs	1945	3-40mL VOA	HCl	
Dissolved Metals	1945	1-1L HDPE/1-500mL HDPE	HNO3 / F-FIELD FILTERED	+ Mercury
Total Metals				
Chromium VI				
Total and WAD CN				
TPH-Dx, TPH-Gx				
SVOCs				
PCBs	1945	2-1L AG	NA	
Redox				

End Time: 1955

Comments / Exceptions:

Presence of floating product? YES / (NO) Presence of sinking product? YES / (NO)

Notes: Where multiple visits are required to complete sampling, parameters are to be checked prior to sampling for each visit. Enter data under field comments.

2-31 Area Data Gap Groundwater Sampling Field Data

Boeing Plant 2, Seattle/Tukwila, Washington

Station	DP-46	Date	9/9/09
Sample: ID	2-31-DP-46-10-W-0	Field Team: (Initials)	JB
Field Conditions	Clear / Evening		

Purge Information

Well Diameter (in.)	1"
Well Depth (ft.)	141
Initial Depth to Water (ft.)	
Depth of Water Column	
3 Casing Volumes	
1 Casing Volume	

Purge Method (circle) : Submersible pump / Bladder Pump / (Peristaltic Pump) / Other: : _____

Start Time	1950
End Time	2040
Total Gallons Purged	2.5 gallons

Time	Gallons	DTW (wells only)	pH	Cond.	NTU	DO	Temp.	ORP	Appearance
2012	1.7		9.13	0.759 mS	10.45	0.08 mg/L	15.69	-22.3	clear
2015	1.9		9.15	0.759 mS	12.2	0.08 mg/L	15.65	-28.0	clear
2018	2.1		9.18	0.758 mS	9.66	0.08 mg/L	15.64	-33.3	clear
2021	2.3		9.23	0.760 mS	9.18	0.07 mg/L	15.61	-38.6	clear

Sample Information

Sample Method(s) (circle): (Peristaltic pump) / Submersible pump / Bladder Pump / Other

Analysis	Time	Bottle Type	Preservative/Filtration	Comments
VOCs	2030	3-40mL NOAs	HCl	
Dissolved Metals	2030	1-1LHDPE/1-500mLHDPE	HNO_3/Field Filtered	+ Mercury
Total Metals				
Chromium VI				
Total and WAD CN				
TPH-Dx, TPH-Gx				
SVOCs				
PCBs	2030	2-1L AG	NA	
Redox				

End Time: 2040

Comments / Exceptions:

Presence of floating product? YES / (NO) Presence of sinking product? YES / (NO)

Notes: Where multiple visits are required to complete sampling, parameters are to be checked prior to sampling for each visit. Enter data under field comments.

2-31 Area Data Gap Groundwater Sampling Field Data

Boeing Plant 2, Seattle/Tukwila, Washington

Station	DP-22	Date	9/10/09
Sample: ID	2-31-DP-22-10-W-0	Field Team: (Initials)	JB
Field Conditions	Sunny		

Purge Information

Well Diameter (in.)	1"
Well Depth (ft.)	14'
Initial Depth to Water (ft.)	
Depth of Water Column	
3 Casing Volumes	
1 Casing Volume	

Purge Method (circle) : Submersible pump / Bladder Pump / Peristaltic Pump / Other: :

Start Time	1220
End Time	1320
Total Gallons Purged	2 gallons

Time	Gallons	DTW (wells only)	pH	Cond.	NTU	DO	Temp.	ORP	Appearance
1236	.75		7.51	0.393	74.6	0.23 mg/L	17.89	101.4	clearing
1241	1.0		7.53	0.37	42.5	0.26 mg/L	17.60	95.7	clear
1245	1.1		7.57	0.365	29.7	0.26 mg/L	17.59	92.7	clear
1251	1.3		7.71	0.356	22.9	0.26 mg/L	17.46	88.9	clear
1256	1.4		7.80	0.353	20.2	0.26 mg/L	17.48	86.7	clear
1300	1.5		7.84	0.351	17.6	0.27 mg/L	17.48	85.7	clear
1303	1.6		7.87	0.351	17.2	0.28 mg/L	17.44	85.1	clear
1306	1.8		7.89	0.345	16.0	0.28 mg/L	17.46	81.2	clear

Sample Information

Sample Method(s) (circle): Peristaltic pump / Submersible pump / Bladder Pump / Other

Analysis	Time	Bottle Type	Preservative/Filtration	Comments
VOCs	1315	3-40 mL VOAs	HCl	
Dissolved Metals	1315	1-L HDPE/1-500 mL HDPE	HNO_3/FIELD FILTERED	+ Mercury
Total Metals				
Chromium VI				
Total and WAD CN				
TPH-Dx, TPH-Gx				
SVOCs				
PCBs				
Redox				

End Time: 1320

Comments / Exceptions:

Presence of floating product? YES / (NO) Presence of sinking product? YES / (NO)

Notes: Where multiple visits are required to complete sampling, parameters are to be checked prior to sampling for each visit. Enter data under field comments.

2-31 Area Data Gap Groundwater Sampling Field Data

Boeing Plant 2, Seattle/Tukwila, Washington

Station	DP-17	Date	9/10/09
Sample: ID	2-31-DP-17-10-D-0	Field Team: (Initials)	JB
Field Conditions	Sunny & clear		

Purge Information

Well Diameter (in.)	1"
Well Depth (ft.)	14'
Initial Depth to Water (ft.)	
Depth of Water Column	
3 Casing Volumes	
1 Casing Volume	

Purge Method (circle) : Submersible pump / Bladder Pump / (Peristaltic Pump) / Other: :

Start Time	1355
End Time	1530
Total Gallons Purged	2.0 gallons

Time	Gallons	DTW (wells only)	pH	Cond.	NTU	DO	Temp.	ORP	Appearance
1410	1.0		9.24	0.543 S/L	34.5	0.36 mg/L	17.34	-32.4	clear
1415	1.2		9.26	0.538 S/L	31.1	0.32 mg/L	17.27	-35.8	clear
1419	1.3		9.28	0.54 S/L	25.3	0.28 mg/L	17.18	-40.2	clear
1422	1.4		9.29	0.543 S/L	18.9	0.24 mg/L	17.12	-47.8	clear
1425	1.5		9.30	0.543 S/L	17.6	0.23 mg/L	17.12	-51.9	clear
1428	1.6		9.31	0.546 S/L	17.4	0.24 mg/L	17.145	-55.0	clear

Sample Information

Sample Method(s) (circle): (Peristaltic pump) / Submersible pump / Bladder Pump / Other

Analysis	Time	Bottle Type	Preservative/Filtration	Comments
VOCs	1445	3-40-mL VOAs	HCl	
Dissolved Metals	1445	1-1L HDPE/1-500-mL HDPE	1-HNO_3/FIELD FILTERED	+Mercury
Total Metals				
Chromium VI				
Total and WAD CN	1445	1-500-mL HDPE	NA	
TPH-Dx, TPH-Gx				
SVOCs	1445	4-500-mL AG	NA	
PCBs	1445	2-1L AG	NA	
Redox				

End Time 1530

Comments / Exceptions:

Presence of floating product? YES / (NO) Presence of sinking product? YES / (NO)

Water is slow producing

Notes: Where multiple visits are required to complete sampling, parameters are to be checked prior to sampling for each visit. Enter data under field comments.

2-31 Area Data Gap Groundwater Sampling Field Data

Boeing Plant 2, Seattle/Tukwila, Washington

Station	DP-16	Date	9/10/01
Sample: ID	2-31-DP-16-10-W-0	Field Team: (Initials)	IB
Field Conditions	Sunny + clear		

Purge Information

Well Diameter (in.)	1"
Well Depth (ft.)	14'
Initial Depth to Water (ft.)	
Depth of Water Column	
3 Casing Volumes	
1 Casing Volume	

Purge Method (circle) : Submersible pump / Bladder Pump / (Peristaltic Pump) / Other: :

Start Time	1430
End Time	1545
Total Gallons Purged	3.0 gallons

Time	Gallons	DTW (wells only)	pH	Cond.	NTU	DO	Temp.	ORP	Appearance
1447	2.0		9.15	0.275mS/cm	20.9	0.09mg/L	17.72	-0.3	clear
1450	2.2		9.18	0.276mS/cm	18.2	0.10mg/L	17.71	-0.6	clear
1453	2.4		9.18	0.276mS/cm	18.1	0.12mg/L	17.65	0.5	clear
1456	2.6		9.20	0.276mS/cm	17.4	0.10mg/L	17.67	-0.4	clear
1459	2.8		9.22	0.277mS/cm	18.9	0.10mg/L	17.68	0.4	clear

Sample Information

Sample Method(s) (circle): (Peristaltic pump) / Submersible pump / Bladder Pump / Other

Analysis	Time	Bottle Type	Preservative/Filtration	Comments
VOCs	~~1340~~ 1530	~~HCl~~ 3-40mL	HCl	
Dissolved Metals	1530	1-L HDPE / 1-500mL HDPE	HNO_3 / FIELD FILTERED	+ Mercury
Total Metals				
Chromium VI				
Total and WAD CN				
TPH-Dx, TPH-Gx				
SVOCs				
PCBs				
Redox				

End Time 1545

Comments / Exceptions:

Presence of floating product? YES / (NO) Presence of sinking product? YES / (NO)

Notes: Where multiple visits are required to complete sampling, parameters are to be checked prior to sampling for each visit. Enter data under field comments.

2-31 Area Data Gap Groundwater Sampling Field Data

Boeing Plant 2, Seattle/Tukwila, Washington

Station	DP-18	Date	9/10/09
Sample: ID	2-31-DP-18-10-W-0	Field Team: (Initials)	JB
Field Conditions	Sunny & Clear		

Purge Information

Well Diameter (in.)	1"
Well Depth (ft.)	141
Initial Depth to Water (ft.)	
Depth of Water Column	
3 Casing Volumes	
1 Casing Volume	

Purge Method (circle) : Submersible pump / Bladder Pump / (Peristaltic Pump) / Other: _____

Start Time	1540
End Time	1640
Total Gallons Purged	3.4 gallons

Time	Gallons	DTW (wells only)	pH	Cond.	NTU	DO	Temp.	ORP	Appearance
1603	2.0		8.74	0.260 mS/cm	53.1	0.29 mg/L	16.51	1.6	clear
1606	2.2		8.60	0.258 mS/cm	35.9	0.15 mg/L	16.36	3.7	clear
1609	2.4		8.61	0.258 mS/cm	29.6	0.11 mg/L	16.34	1.8	clear
1612	2.6		8.61	0.258 mS/cm	29.4	0.09 mg/L	16.31	0.3	clear
1615	2.8		8.63	0.259 mS/cm	26.3	0.09 mg/L	16.25	-1.4	clear
1618	3.0		8.60	0.258 mS/cm	27.8	0.09 mg/L	1620	-2.9	clear
1621	3.2		8.56	0.258 mS/cm	25.4	0.09 mg/L	16.18	-4.3	clear

Sample Information

Sample Method(s) (circle): (Peristaltic pump) / Submersible pump / Bladder Pump / Other

Analysis	Time	Bottle Type	Preservative/Filtration	Comments
VOCs	1630	3-40mL VOAs	HCl	
Dissolved Metals	1630	1-1L HDPE/1-500mL HDPE	HNO3/FIELD FILTERED	+ Mercury
Total Metals				
Chromium VI				
Total and WAD CN				
TPH-Dx, TPH-Gx				
SVOCs				
PCBs				
Redox				
End Time	1640			

Comments / Exceptions:

Presence of floating product? YES / (NO) Presence of sinking product? YES / (NO)

Notes: Where multiple visits are required to complete sampling, parameters are to be checked prior to sampling for each visit. Enter data under field comments.

2-31 Area Data Gap Groundwater Sampling Field Data

Boeing Plant 2, Seattle/Tukwila, Washington

Station	DP-12	Date	9/11/09
Sample: ID	2-31-DP-12-10-1140	Field Team: (Initials)	TB
Field Conditions	Sunny & Clear		

Purge Information

Well Diameter (in.)	1"
Well Depth (ft.)	14'
Initial Depth to Water (ft.)	
Depth of Water Column	
3 Casing Volumes	
1 Casing Volume	

Purge Method (circle) : Submersible pump / Bladder Pump / (Peristaltic Pump) / Other: : _____

Start Time	0740
End Time	0900
Total Gallons Purged	2.0 gallons

Time	Gallons	DTW (wells only)	pH	Cond.	NTU	DO	Temp.	ORP	Appearance
0815	1.4		6.90	8.479	33.1	0.61 mg/L	15.28	123.6	clear
0819	1.5		7.06	8.450	21.3	0.51 mg/L	15.24	116.2	clear
0822	1.6		7.15	8.428	17.9	0.50 mg/L	15.22	112.4	clear
0825	1.7		7.21	8.417	7.62	0.49 mg/L	15.20	110.2	clear
0828	1.8		7.24	8.409	6.97	0.48 mg/L	15.20	108.7	clear

Sample Information

Sample Method(s) (circle): (Peristaltic pump) / Submersible pump / Bladder Pump / Other

Analysis	Time	Bottle Type	Preservative/Filtration	Comments
VOCs	0830	3-40mL VOAs	HCl	
Dissolved Metals	0830	1-1L HDPE/1-500mL HDPE	HNO_3/FIELD FILTERED	+ Mercury
Total Metals				
Chromium VI				
Total and WAD CN	0830	1-500mL HDPE	NA	
TPH-Dx, TPH-Gx				
SVOCs				
PCBs				
Redox				

End Time 0900

Comments / Exceptions:

Presence of floating product? YES / (NO) Presence of sinking product? YES / (NO)

Notes: Where multiple visits are required to complete sampling, parameters are to be checked prior to sampling for each visit. Enter data under field comments.

2-31 Area Data Gap Groundwater Sampling Field Data

Boeing Plant 2, Seattle/Tukwila, Washington

Station	DP-10	Date	9/11/18
Sample: ID	2-31-DP-10-10-W-0	Field Team: (Initials)	JB
Field Conditions	Sunny + clear		

Purge Information

Well Diameter (in.)	1"
Well Depth (ft.)	14'
Initial Depth to Water (ft.)	
Depth of Water Column	
3 Casing Volumes	
1 Casing Volume	

Purge Method (circle) : Submersible pump / ~~Bladder Pump~~ / Peristaltic Pump / Other: : _____

Start Time	0855
End Time	1025
Total Gallons Purged	1.5 gallons

Time	Gallons	DTW (wells only)	pH	Cond.	NTU	DO	Temp.	ORP	Appearance
0917	.6		7.82	0.746 S/m	42.7	0.27 mg/L	17.67	-19.6	clear
0921	.8		7.77	0.710 S/m	43.6	0.27 mg/L	17.70	-18.2	clear
0924	.9		7.76	0.702 S/m	34.4	0.22 mg/L	17.73	-17.5	clear
0927	1.0		7.75	0.695 S/m	33.1	0.21 mg/L	17.75	-18.0	clear
0930	1.1		7.73	0.687 S/m	32.1	0.21 mg/L	17.77	-18.4	clear
0933	1.2		7.76	0.685 S/m	31.0	0.22 mg/L	17.78	-19.4	clear

Sample Information

Sample Method(s) (circle): Peristaltic pump / Submersible pump / Bladder Pump / Other

Analysis	Time	Bottle Type	Preservative/Filtration	Comments
VOCs	0940	3-40mL VOAs	HCl	
Dissolved Metals	0940	1-1L HDPE/1-500mL HDPE	HNO_3 + Field Filtered	+ Mercury
Total Metals				
Chromium VI				
Total and WAD CN				
TPH-Dx, TPH-Gx				
SVOCs				
PCBs				
Redox				

End Time 1050

Comments / Exceptions:

Presence of floating product? YES / NO Presence of sinking product? YES / NO

Notes: Where multiple visits are required to complete sampling, parameters are to be checked prior to sampling for each visit. Enter data under field comments.

2-31 Area Data Gap Groundwater Sampling Field Data

Boeing Plant 2, Seattle/Tukwila, Washington

Station	DP-12	Date	9/2/04
Sample: ID	2-31-DP-12-40-10-0	Field Team: (Initials)	JB
Field Conditions	Sunny + Clear		

Purge Information

Well Diameter (in.)	1"
Well Depth (ft.)	44'
Initial Depth to Water (ft.)	
Depth of Water Column	
3 Casing Volumes	
1 Casing Volume	

Purge Method (circle): Submersible pump / ~~Bladder Pump~~ / Peristaltic Pump / Other: :

Start Time	1020
End Time	1120
Total Gallons Purged	3.0 gallons

Time	Gallons	DTW (wells only)	pH	Cond.	NTU	DO	Temp.	ORP	Appearance
1043	2		8.70	22.29 mS	87.3	0.15 mg/L	16.22	-62.7	cloudy
1047	2.2		8.65	22.31 mS	85.5	0.14 mg/L	16.23	-66.7	cloudy
1051	2.4		8.60	22.32 mS	87.5	0.13 mg/L	16.16	-69.6	cloudy
1054	2.6		8.58	22.31 mS	91.4	0.14 mg/L	16.20	-70.9	cleaning

Sample Information

Sample Method(s) (circle): Peristaltic pump / Submersible pump / Bladder Pump / Other

Analysis	Time	Bottle Type	Preservative/Filtration	Comments
VOCs	1110	3-40mL VOAs	HCl	
Dissolved Metals	1110	1-1L HDPE/1-500mL HDPE	HNO3/Field Filtered	+ Mercury
Total Metals				
Chromium VI				
Total and WAD CN	1110	1-500mL HDPE	NA	
TPH-Dx, TPH-Gx				
SVOCs				
PCBs				
Redox				

End Time 1120

Comments / Exceptions:

Presence of floating product? YES / NO Presence of sinking product? YES / NO

Notes: Where multiple visits are required to complete sampling, parameters are to be checked prior to sampling for each visit. Enter data under field comments.

2-31 Area Data Gap Groundwater Sampling Field Data

Boeing Plant 2, Seattle/Tukwila, Washington

Station	DP-10	Date	9/11/09
Sample: ID	2-31-DP-10 40-20-0	Field Team: (Initials)	JB
Field Conditions	Sunny & Clear		

Purge Information

Well Diameter (in.)	1"
Well Depth (ft.)	44'
Initial Depth to Water (ft.)	
Depth of Water Column	
3 Casing Volumes	
1 Casing Volume	

Purge Method (circle) : Submersible pump / Bladder Pump / (Peristaltic Pump) / Other: :

Start Time	1155
End Time	1310
Total Gallons Purged	3.2 gallons

Time	Gallons	DTW (wells only)	pH	Cond.	NTU	DO	Temp.	ORP	Appearance
1213	1.2		7.55	0.703 mS	238	0.51 mg/L	21.20	-19.7	cloudy/yellow
1216	1.4		6.67	0.695 mS	295	0.39 mg/L	20.60	-12.0	cloudy/yellow
1223	1.8		6.53	0.685 mS	694	0.33 mg/L	20.55	-14.6	cloudy/yellow
1234	2.0		6.60	0.685 mS	678	0.28 mg/L	20.53	-29.6	cloudy/yellow
1237	2.2		6.56	0.683 mS	672	0.26 mg/L	20.41	-22.7	cloudy/yellow
1240	2.4		6.31	0.685 mS	712	0.16 mg/L	20.39	-14.6	cloudy/yellow
1243	2.6		6.37	0.686 mS	727	0.16 mg/L	20.43	-10.7	cloudy/yellow
1247	2.8		6.36	0.68 mS	701	0.19 mg/L	20.43	-22.4	cloudy/yellow
1250	3.0		6.30	0.69 mS	680	0.19 mg/L	20.47	-13.7	cloudy/yellow

Sample Information

Sample Method(s) (circle): (Peristaltic pump) / Submersible pump / Bladder Pump / Other

Analysis	Time	Bottle Type	Preservative/Filtration	Comments
VOCs	1300	3-40mL VOAs	HCl	
Dissolved Metals	1300	1-1L HDPE/1-500mL HDPE	HNO_3 / FILTERED-FIELD	thorium
Total Metals				
Chromium VI				
Total and WAD CN				
TPH-Dx, TPH-Gx				
SVOCs				
PCBs				
Redox				

End Time 1310

Comments / Exceptions:

Presence of floating product? YES / (NO) Presence of sinking product? YES / (NO)

Notes: Where multiple visits are required to complete sampling, parameters are to be checked prior to sampling for each visit. Enter data under field comments.

2-31 Area Data Gap Groundwater Sampling Field Data

Boeing Plant 2, Seattle/Tukwila, Washington

Station	DP-08	Date	9/14/09
Sample: ID	2-31-DP-08-10-W-0	Field Team: (Initials)	JB
Field Conditions	Cloudy		

Purge Information

Well Diameter (in.)	1"
Well Depth (ft.)	14'
Initial Depth to Water (ft.)	
Depth of Water Column	
3 Casing Volumes	
1 Casing Volume	

Purge Method (circle) : Submersible pump / Bladder Pump / (Peristaltic Pump) / Other: : _____

Start Time	0750
End Time	0845
Total Gallons Purged	3.8 gallons

Time	Gallons	DTW (wells only)	pH	Cond.	NTU	DO	Temp.	ORP	Appearance
0800	1.0		8.85	0.518 SL	143	0.13 mg/L	17.43	-30.9	cloudy / yellow
0803	1.2		8.84	0.516 SL	96.6	0.12 mg/L	17.43	-37.5	cloudy / yellow
0806	1.4		8.84	0.513 SL	38.5	0.12 mg/L	17.41	-44.4	cloudy / yellow
0809	1.6		8.85	0.502 SL	33.7	0.12 mg/L	17.41	-49.3	cloudy / yellow
0812	1.8		8.86	0.504 SL	28.2	0.12 mg/L	17.38	-53.3	clearing
0815	2.0		8.87	0.500 SL	24.2	0.12 mg/L	17.37	-56.4	clear
0818	2.2		8.88	0.498 SL	22.0	0.12 mg/L	17.36	-58.6	clear
0821	2.4		8.90	0.496 SL	17.9	0.12 mg/L	17.37	-60.6	clear
0824	2.6		8.91	0.494 SL	17.0	0.12 mg/L	17.37	-61.8	clear
0827	2.8		8.91	0.493 SL	16.3	0.12 mg/L	17.39	-62.9	clear

Sample Information

Sample Method(s) (circle): (Peristaltic pump) / Submersible pump / Bladder Pump / Other

Analysis	Time	Bottle Type	Preservative/Filtration	Comments
VOCs	0830	3-40 mL VOAs	HCl	
Dissolved Metals	0830	1-1L HDPE/1-500 mL HDPE	HNO_3 / FIELD FILTERED	+ Mercury
Total Metals				
Chromium VI				
Total and WAD CN				
TPH-Dx, TPH-Gx				
SVOCs				
PCBs	0830	2-1L AG	NA	
Redox				

End Time 0845

Comments / Exceptions:

Presence of floating product? YES / (NO) Presence of sinking product? YES / (NO)

Notes: Where multiple visits are required to complete sampling, parameters are to be checked prior to sampling for each visit. Enter data under field comments.

2-31 Area Data Gap Groundwater Sampling Field Data

Boeing Plant 2, Seattle/Tukwila, Washington

Station	DP-42	Date	9/14/09
Sample: ID	2-31-DP-42-GW-09-1	Field Team: (Initials)	JB
Field Conditions	Cloudy		

Purge Information

Well Diameter (in.)	1"
Well Depth (ft.)	14'
Initial Depth to Water (ft.)	
Depth of Water Column	
3 Casing Volumes	
1 Casing Volume	

Purge Method (circle) : Submersible pump / Bladder Pump / ~~Peristaltic Pump~~ / Other: : _____

Start Time	0840
End Time	0935
Total Gallons Purged	3.0 gallons

Time	Gallons	DTW (wells only)	pH	Cond.	NTU	DO	Temp.	ORP	Appearance
0901	2.0		8.98	0.446 mS	24.2	0.12 mg/L	17.75	33.0	clear
0904	2.2		9.00	0.441 mS	14.7	0.12 mg/L	17.73	32.5	clear
0907	2.4		9.02	0.445 mS	12.5	0.12 mg/L	17.76	32.0	clear
0910	2.6		9.0	0.445 mS	9.37	0.12 mg/L	17.76	31.7	clear

Sample Information

Sample Method(s) (circle): Peristaltic pump / Submersible pump / Bladder Pump / Other

Analysis	Time	Bottle Type	Preservative/Filtration	Comments
VOCs	0920	3-40mL VOAs	HCl	Duplicate @ 0930
Dissolved Metals	0920	1-1L HDPE/1-500mL HDPE	HNO_3/FIELD FILTERED	Duplicate @ 0930 + Mercury
Total Metals				
Chromium VI				
Total and WAD CN				
TPH-Dx, TPH-Gx				
SVOCs				
PCBs				
Redox				

End Time: 0935

Comments / Exceptions:

Presence of floating product? YES / NO Presence of sinking product? YES / NO

Notes: Where multiple visits are required to complete sampling, parameters are to be checked prior to sampling for each visit. Enter data under field comments.

2-31 Area Data Gap Groundwater Sampling Field Data

Boeing Plant 2, Seattle/Tukwila, Washington

Station	DP-09	Date	9/14/09
Sample: ID	2-31-DP-09-12-U-0	Field Team: (Initials)	JB
Field Conditions	Cloudy		

Purge Information

Well Diameter (in.)	1"
Well Depth (ft.)	14'
Initial Depth to Water (ft.)	
Depth of Water Column	
3 Casing Volumes	
1 Casing Volume	

Purge Method (circle) : Submersible pump / Bladder Pump / (Peristaltic Pump) / Other: : _____

Start Time	1040
End Time	1140
Total Gallons Purged	20 gallons

Time	Gallons	DTW (wells only)	pH	Cond.	NTU	DO	Temp.	ORP	Appearance
1104	1.2		10.15	0.532 S/m	59.2	0.19 mg/L	17.03	-37.6	clearing
1107	1.3		10.17	0.535 S/m	50.8	0.18 mg/L	16.93	-44.8	clear
1110	1.4		10.18	0.534 S/m	51.8	0.17 mg/L	16.96	-52.7	clear
1114	1.5		10.19	0.532 S/m	34.1	0.16 mg/L	16.98	-58.1	clear
1117	1.6		10.19	0.531 S/m	28.4	0.15 mg/L	16.98	-61.2	clear
1120	1.7		10.19	0.532 S/m	26.5	0.15 mg/L	16.94	-65.3	clear
1123	1.8		10.18	0.533 S/m	27.1	0.15 mg/L	17.00	-66.2	clear

Sample Information

Sample Method(s) (circle): (Peristaltic pump) / Submersible pump / Bladder Pump / Other

Analysis	Time	Bottle Type	Preservative/Filtration	Comments
VOCs	1130	3-40mL VOA	HCl	
Dissolved Metals	1130	1-1L HDPE/1-500mL HDPE	HNO_3 / Field Filtered	+ Mercury
Total Metals				
Chromium VI				
Total and WAD CN				
TPH-Dx, TPH-Gx				
SVOCs				
PCBs				
Redox				

End Time: 1140

Comments / Exceptions:

Presence of floating product? YES / (NO) Presence of sinking product? YES / (NO)

Water is producing slow. Send pump down to 16' bgs

Notes: Where multiple visits are required to complete sampling, parameters are to be checked prior to sampling for each visit. Enter data under field comments.

2-31 Area Data Gap Groundwater Sampling Field Data

Boeing Plant 2, Seattle/Tukwila, Washington

Station	DP-08	Date	9/14/07
Sample: ID	2-31-DP-08-40-U-0	Field Team: (Initials)	JB
Field Conditions	Cloudy		

Purge Information

Well Diameter (in.)	1"
Well Depth (ft.)	14'
Initial Depth to Water (ft.)	
Depth of Water Column	
3 Casing Volumes	
1 Casing Volume	

Purge Method (circle) : Submersible pump / Bladder Pump / (Peristaltic Pump) / Other: : _____

Start Time	1025
End Time	1215
Total Gallons Purged	5.0 gallons

Time	Gallons	DTW (wells only)	pH	Cond.	NTU	DO	Temp.	ORP	Appearance
1143	4.0		10.14	4.587 S	47.6	0.08 g/L	17.35	-87.9	clearing
1146	4.2		10.15	4.582 S	48.6	0.06 g/L	17.30	-88.8	clear
1149	4.4		10.12	4.586 S	45.7	0.08 g/L	17.28	-87.8	clear
1152	4.6		10.17	4.581 S	44.1	0.08 g/L	17.23	-89.7	clearing

Sample Information

Sample Method(s) (circle): (Peristaltic pump) / Submersible pump / Bladder Pump / Other

Analysis	Time	Bottle Type	Preservative/Filtration	Comments
VOCs	1200	3-40mL VOA	HCl	
Dissolved Metals	1200	1-1L HDPE / 1-500mL HDPE	HNO_3 / FIELD FILTERED	+ Mercury
Total Metals				
Chromium VI				
Total and WAD CN				
TPH-Dx, TPH-Gx				
SVOCs		~~2-1L AMB~~		
PCBs	1200	2-1L AC	NA	
Redox				

End Time: 1215

Comments / Exceptions:

Presence of floating product? YES / (NO) Presence of sinking product? YES / (NO)

Notes: Where multiple visits are required to complete sampling, parameters are to be checked prior to sampling for each visit. Enter data under field comments.

2-31 Area Data Gap Groundwater Sampling Field Data

Boeing Plant 2, Seattle/Tukwila, Washington

Station	DP-09	Date	9/14/09
Sample: ID	2-31-DP-09-40-W-0	Field Team: (Initials)	JR
Field Conditions	Cloudy		

Purge Information

Well Diameter (in.)	1"
Well Depth (ft.)	14'
Initial Depth to Water (ft.)	
Depth of Water Column	
3 Casing Volumes	
1 Casing Volume	

Purge Method (circle) : Submersible pump / Bladder Pump / (Peristaltic Pump) / Other: : _____

Start Time	1300
End Time	1415
Total Gallons Purged	4.2 gallons

Time	Gallons	DTW (wells only)	pH	Cond.	NTU	DO	Temp.	ORP	Appearance
1338	3.0		10.14	1.821-SL	797	0.15-mg/L	17.75	-38.3	cloudy
1347	3.4		10.13	1.820-SL	812	0.15-mg/L	17.71	-46.8	cloudy
1350	3.6		10.12	1.826-SL	733	0.15-mg/L	17.68	-50.0	cloudy
1353	3.8		10.14	1.829-SL	730	0.15-mg/L	17.63	-51.9	cloudy
1356	4.0		10.13	1.835-SL	715	0.15-mg/L	17.59	-52.7	cloudy

Sample Information

Sample Method(s) (circle): (Peristaltic pump) / Submersible pump / Bladder Pump / Other

Analysis	Time	Bottle Type	Preservative/Filtration	Comments
VOCs	1400	3-40-mL VOAs	HCl	
Dissolved Metals	1400	1-500-mL HDPE/1-mL HDPE	HNO_3/Field Filtered	+ Mercury
Total Metals				
Chromium VI				
Total and WAD CN				
TPH-Dx, TPH-Gx				
SVOCs				
PCBs				
Redox				

End Time 1415

Comments / Exceptions:

Presence of floating product? YES / (NO) Presence of sinking product? YES / (NO)

Notes: Where multiple visits are required to complete sampling, parameters are to be checked prior to sampling for each visit. Enter data under field comments.

2-31 Area Data Gap Groundwater Sampling Field Data

Boeing Plant 2, Seattle/Tukwila, Washington

Station	DP-30	Date	9/15/09
Sample: ID	2-31-DP-30-10-W-0	Field Team: (Initials)	JB
Field Conditions	INSIDE		

Purge Information

Well Diameter (in.)	1"
Well Depth (ft.)	14'
Initial Depth to Water (ft.)	
Depth of Water Column	
3 Casing Volumes	
1 Casing Volume	

Purge Method (circle) : Submersible pump / Bladder Pump / (Peristaltic Pump) / Other: : _____

Start Time	0650
End Time	0815
Total Gallons Purged	3.5 gallons

Time	Gallons	DTW (wells only)	pH	Cond.	NTU	DO	Temp.	ORP	Appearance
0714	1.6		7.10	0.535 S	83.7	0.19 g/L	22.67	44.4	cloudy
0718	1.8		7.39	0.537 S	76.9	0.18 g/L	22.72	10.5	cloudy
0722	2.0		7.64	0.535 S	52.2	0.18 g/L	22.74	-12.5	cloudy
0726	2.2		7.79	0.535 S	42.7	0.18 g/L	22.74	-25.3	clearing / yellowish
0729	2.4		7.92	0.535 S	40.6	0.17 g/L	22.73	-31.0	clear
0732	2.6		8.03	0.535 S	43.6	0.16 g/L	22.74	-35.7	clear
0740	2.8		8.29	0.535 S	29.9	0.16 g/L	22.77	-43.2	clear
0743	3.0		8.33	0.534 S	28.4	0.16 g/L	22.76	-45.8	clear
0746	3.2		8.37	0.534 S	27.9	0.16 g/L	22.76	-46.9	clear

Sample Information

Sample Method(s) (circle): (Peristaltic pump) / Submersible pump / Bladder Pump / Other

Analysis	Time	Bottle Type	Preservative/Filtration	Comments
VOCs	0800	3-40-mL VOAs	HCl	
Dissolved Metals	0800	1-1L HDPE / 1-500-mL HDPE	HNO3 / FIELD FILTERED	+Mercury
Total Metals				
Chromium VI				
Total and WAD CN				
TPH-Dx, TPH-Gx				
SVOCs				
PCBs	0800	2-L AG	NA	
Redox				

End Time 0815

Comments / Exceptions:

Presence of floating product? YES / (NO) Presence of sinking product? YES / (NO)

Notes: Where multiple visits are required to complete sampling, parameters are to be checked prior to sampling for each visit. Enter data under field comments.

2-31 Area Data Gap Groundwater Sampling Field Data

Boeing Plant 2, Seattle/Tukwila, Washington

Station	DP-15	Date	9/15/09
Sample: ID	2-31-DP-15-090915	Field Team: (Initials)	JB
Field Conditions	Inside		

Purge Information

Well Diameter (in.)	1"
Well Depth (ft.)	19'
Initial Depth to Water (ft.)	
Depth of Water Column	
3 Casing Volumes	
1 Casing Volume	

Purge Method (circle) : Submersible pump / Bladder Pump / (Peristaltic Pump) / Other: : _____

Start Time	0805
End Time	0850
Total Gallons Purged	2.2 gallons

Time	Gallons	DTW (wells only)	pH	Cond.	NTU	DO	Temp.	ORP	Appearance
0819	1.0		9.08	0.805 mS	24.6	0.21 mg/L	24.08	-49.0	clear
0822	1.2		9.10	0.883 mS	19.3	0.21 mg/L	24.08	-48.3	clear
0825	1.4		9.11	0.891 mS	11.3	0.20 mg/L	24.08	-51.2	clear
0828	1.6		9.12	0.798 mS	10.85	0.20 mg/L	24.08	-53.1	clear
0831	1.8		9.14	0.796 mS	8.68	0.20 mg/L	24.08	-54.4	clear

Sample Information

Sample Method(s) (circle): (Peristaltic pump) / Submersible pump / Bladder Pump / Other

Analysis	Time	Bottle Type	Preservative/Filtration	Comments
VOCs	0840	3-40-mL VOAs	HCl	
Dissolved Metals	0840	1-125 HDPE/1-500 mL HDPE	HNO3/Field Filtered	+ Mercury
Total Metals				
Chromium VI				
Total and WAD CN				
TPH-Dx, TPH-Gx				
SVOCs				
PCBs	0840	2-1L AG	NA	
Redox				

End Time 0850

Comments / Exceptions:

Presence of floating product? YES / (NO) Presence of sinking product? YES / (NO)

Notes: Where multiple visits are required to complete sampling, parameters are to be checked prior to sampling for each visit. Enter data under field comments.

2-31 Area Data Gap Groundwater Sampling Field Data

Boeing Plant 2, Seattle/Tukwila, Washington

Station	DP-21	Date	9/15/09
Sample: ID	2-31-DP-21-10-N-0	Field Team: (Initials)	JB
Field Conditions	Sunny + Clear		

Purge Information

Well Diameter (in.)	1"
Well Depth (ft.)	14'
Initial Depth to Water (ft.)	
Depth of Water Column	
3 Casing Volumes	
1 Casing Volume	

Purge Method (circle) : Submersible pump / ~~Bladder Pump~~ / Peristaltic Pump / Other: : _____

Start Time	1110
End Time	1155
Total Gallons Purged	1.2 gallons

Time	Gallons	DTW (wells only)	pH	Cond.	NTU	DO	Temp.	ORP	Appearance
1118	.6		10.04	0.550 mS/cm	85.9	0.13 mg/L	19.67	62.8	cloudy
1121	.7		10.05	0.548 mS/cm	57.5	0.13 mg/L	18.59	57.5	clearing
1124	.8		10.10	0.550 mS/cm	37.7	0.12 mg/L	18.46	54.4	clearing
1127	.9		10.11	0.552 mS/cm	26.1	0.12 mg/L	18.92	52.6	clear
1130	1.0		10.13	0.554 mS/cm	21.8	0.12 mg/L	18.90	51.0	clear
1133	1.1		10.15	0.556 mS/cm	21.8	0.11 mg/L	18.36	49.7	clear
1136	1.2		10.17	0.558 mS/cm	15.1	0.11 mg/L	18.40	48.5	clear
1139	1.3		10.18	0.560 mS/cm	14.2	0.11 mg/L	18.39	47.5	clear
1142	1.4		10.19	0.560 mS/cm	14.2	0.11 mg/L	18.41	46.8	clear

Sample Information

Sample Method(s) (circle): Peristaltic pump / Submersible pump / Bladder Pump / Other

Analysis	Time	Bottle Type	Preservative/Filtration	Comments
VOCs	1145	3-40mL VOAs	HCl	
Dissolved Metals	1145	1-1L HDPE/1-500mL HDPE	HNO3/FIELD FILTERED + Mercury	
Total Metals				
Chromium VI				
Total and WAD CN				
TPH-Dx, TPH-Gx				
SVOCs				
PCBs				
Redox				

End Time: 1155

Comments / Exceptions:

Presence of floating product? YES / (NO) Presence of sinking product? YES / (NO)

Notes: Where multiple visits are required to complete sampling, parameters are to be checked prior to sampling for each visit. Enter data under field comments.

2-31 Area Data Gap Groundwater Sampling Field Data

Boeing Plant 2, Seattle/Tukwila, Washington

Station	DP-27	Date	9/15/09
Sample: ID	2-31-DD-27-10-W-0	Field Team: (Initials)	JB
Field Conditions	INSIDE		

Purge Information

Well Diameter (in.)	1"
Well Depth (ft.)	19'
Initial Depth to Water (ft.)	
Depth of Water Column	
3 Casing Volumes	
1 Casing Volume	

Purge Method (circle) : Submersible pump / Bladder Pump / (Peristaltic Pump) / Other: : _____

Start Time	0915
End Time	1015
Total Gallons Purged	1.6 gallons

Time	Gallons	DTW (wells only)	pH	Cond.	NTU	DO	Temp.	ORP	Appearance
0930	1.0		9.67	0.751 S/c	41.3	0.26 mg/L	20.31	5.9	clear/brownish
0933	1.1		9.58	0.750 S/c	37.9	0.24 mg/L	20.30	3.5	clear/brownish
0936	1.2		9.56	0.750 S/c	35.2	0.22 mg/L	20.28	3.1	clear/brownish
0939	1.3		9.54	0.749 S/c	30.2	0.21 mg/L	20.25	3.1	clear
0942	1.4		9.50	0.749 S/c	26.1	0.21 mg/L	20.26	2.5	clear
0945	1.5		9.50	0.748 S/c	21.9	0.21 mg/L	20.23	-0.1	clear
0948	1.6		9.49	0.748 S/c	17.6	0.21 mg/L	20.23	-0.2	clear
					8.92	Final turbidity reading without flow-through cell			

Sample Information

Sample Method(s) (circle): (Peristaltic pump) / Submersible pump / Bladder Pump / Other

Analysis	Time	Bottle Type	Preservative/Filtration	Comments
VOCs	1000	3-40mL VOA	HCl	
Dissolved Metals	1000	1-1L HDPE/1-500mL HDPE	HNO_3/FIELD FILTERED	+Mercury
Total Metals				
Chromium VI				
Total and WAD CN	1000	1-500mL HDPE	NA	
TPH-Dx, TPH-Gx				
SVOCs				
PCBs				
Redox				

End Time 1005

Comments / Exceptions:

Presence of floating product? YES / (NO) Presence of sinking product? YES / (NO)

Water is Slowly Producing

Notes: Where multiple visits are required to complete sampling, parameters are to be checked prior to sampling for each visit. Enter data under field comments.

2-31 Area Data Gap Groundwater Sampling Field Data

Boeing Plant 2, Seattle/Tukwila, Washington

Station	DP-23	Date	9/15/09
Sample: ID	2-31-DP-23-10-N-0	Field Team: (Initials)	JB
Field Conditions	Sunny & Clear		

Purge Information

Well Diameter (in.)	1"
Well Depth (ft.)	19'
Initial Depth to Water (ft.)	
Depth of Water Column	
3 Casing Volumes	
1 Casing Volume	

Purge Method (circle) : Submersible pump / Bladder Pump / (Peristaltic Pump) / Other: : _____

Start Time	1150
End Time	1240
Total Gallons Purged	2.8 gallons

Time	Gallons	DTW (wells only)	pH	Cond.	NTU	DO	Temp.	ORP	Appearance
1206	1.5		10.18	0.518 mS/cm	32.1	0.17 mg/L	18.10	14.9	clear
1209	1.7		10.20	0.520 mS/cm	29.2	0.16 mg/L	18.10	12.3	clear
1212	1.9		10.20	0.518 mS/cm	29.7	0.16 mg/L	18.01	10.0	clear
1215	2.1		10.20	0.519 mS/cm	19.8	0.16 mg/L	17.99	7.5	clear
1218	2.3		10.21	0.520 mS/cm	16.9	0.16 mg/L	17.99	5.6	clear
1221	2.5		10.19	0.520 mS/cm	17.7	0.15 mg/L	17.98	3.5	clear
1224	2.7		10.18	0.520 mS/cm	16.8	0.15 mg/L	18.03	2.2	clear

Sample Information

Sample Method(s) (circle): (Peristaltic pump) / Submersible pump / Bladder Pump / Other

Analysis	Time	Bottle Type	Preservative/Filtration	Comments
VOCs	1230	3-40mL VOAs	HCl	
Dissolved Metals	1230	1-1L HDPE/1-500mL HDPE	HNO_3/FIELD FILTERED	+Mercury
Total Metals				
Chromium VI				
Total and WAD CN				
TPH-Dx, TPH-Gx				
SVOCs				
PCBs				
Redox				

End Time 1240

Comments / Exceptions:

Presence of floating product? YES / (NO) Presence of sinking product? YES / (NO)

Notes: Where multiple visits are required to complete sampling, parameters are to be checked prior to sampling for each visit. Enter data under field comments.

2-31 Area Data Gap Groundwater Sampling Field Data

Boeing Plant 2, Seattle/Tukwila, Washington

Station	DP-01	Date	9/16/09
Sample: ID	2-31-DP-01-16-W-0	Field Team: (Initials)	JS
Field Conditions	Sunny & Clear		

Purge Information

Well Diameter (in.)	1"
Well Depth (ft.)	14'
Initial Depth to Water (ft.)	
Depth of Water Column	
3 Casing Volumes	
1 Casing Volume	

Purge Method (circle) : Submersible pump / Bladder Pump / (Peristaltic Pump) / Other: : _____

Start Time	0725
End Time	0825
Total Gallons Purged	4.0 gallons

Time	Gallons	DTW (wells only)	pH	Cond.	NTU	DO	Temp.	ORP	Appearance
0749	2.4		6.03	0.337 mS/cm	88.7	0.16 mg/L	17.77	125.3	cloudy
0753	2.6		6.46	0.252 mS/cm	56.4	0.16 mg/L	17.69	88.5	cloudy
0756	2.8		6.65	0.244 mS/cm	60.8	0.17 mg/L	17.70	81.4	clearing
0759	3.0		6.85	0.241 mS/cm	57.3	0.18 mg/L	17.70	75.8	clearing
0802	3.2		6.98	0.240 mS/cm	49.4	0.18 mg/L	17.65	68.0	clearing
0805	3.4		7.03	0.239 mS/cm	48.6	0.18 mg/L	17.66	63.1	clearing
0808	3.6		7.06	0.239 mS/cm	45.9	0.18 mg/L	17.63	58.0	clearing

Sample Information

Sample Method(s) (circle): (Peristaltic pump) / Submersible pump / Bladder Pump / Other

Analysis	Time	Bottle Type	Preservative/Filtration	Comments
VOCs	0815	3-40mL VOAs	HCl	
Dissolved Metals	0815	1-L HDPE/1-500mL HDPE	HNO_3	
Total Metals				
Chromium VI				
Total and WAD CN				
TPH-Dx, TPH-Gx	0815	2-500mL AG/2-40mL VOAs	NA / HCl	
SVOCs				
PCBs				
Redox				

End Time 0825

Comments / Exceptions:

Presence of floating product? YES / (NO) Presence of sinking product? YES / (NO)

Notes: Where multiple visits are required to complete sampling, parameters are to be checked prior to sampling for each visit. Enter data under field comments.

2-31 Area Data Gap Groundwater Sampling Field Data

Boeing Plant 2, Seattle/Tukwila, Washington

Station	DP-39	Date	9/16/09
Sample: ID	2-31-DP-39-10-W-0	Field Team: (Initials)	JB
Field Conditions	Cloudy		

Purge Information

Well Diameter (in.)	1"
Well Depth (ft.)	14'
Initial Depth to Water (ft.)	
Depth of Water Column	
3 Casing Volumes	
1 Casing Volume	

Purge Method (circle) : Submersible pump / Bladder Pump / (Peristaltic Pump) / Other: :

Start Time	0915
End Time	1030
Total Gallons Purged	3.0 gallons

Time	Gallons	DTW (wells only)	pH	Cond.	NTU	DO	Temp.	ORP	Appearance
0922	1.1		8.48	0.491 mS/cm	51.1	0.26 mg/L	18.12	49.2	clear
0927	1.3		8.59	0.489 mS/cm	35.4	0.26 mg/L	17.94	29.6	clear
0931	1.5		8.72	0.491 mS/cm	29.5	0.24 mg/L	17.91	9.9	clear
0934	1.6		8.76	0.491 mS/cm	21.5	0.24 mg/L	17.90	1.2	clear
0937	1.7		8.81	0.491 mS/cm	15.5	0.25 mg/L	17.86	-6.4	clear
0940	1.8		8.85	0.491 mS/cm	13.0	0.26 mg/L	17.87	-12.0	clear
0943	1.9		8.89	0.491 mS/cm	12.0	0.26 mg/L	17.82	-15.4	clear
0946	2.0		8.92	0.491 mS/cm	9.67	0.25 mg/L	17.83	-20.5	clear

Sample Information

Sample Method(s) (circle): (Peristaltic pump) / Submersible pump / Bladder Pump / Other

Analysis	Time	Bottle Type	Preservative/Filtration	Comments
VOCs	1000	3-40mL VOA	HCl	
Dissolved Metals	1000	1-1L HDPE/1-500mL HDPE	HNO_3 / FIELD FILTERED	+ Mercury
Total Metals				
Chromium VI				
Total and WAD CN	1000	1-500mL HDPE	NA	
TPH-Dx, TPH-Gx	1000	2-500mL AG/2-40mL VOA	2-500mL AG / HCl	
SVOCs	1000	4-500mL AG	NA	2 SIM PAHs + LSVOC
PCBs	1000	2-1L AG		
Redox	1000	see below		

End Time 1030

Comments / Exceptions:

Presence of floating product? YES / (NO) Presence of sinking product? YES / (NO)

TDS	1L HDPE	NA	Ferrous Iron Hach kit = 3.6 mg/L
Density	1L HDPE	NA	
Nitrate/Nitrite/Sulfide	1-500mL HDPE	NA	
Ammonia	500mL HDPE	H_2SO_4	
Sulfate	500mL HDPE	NaOH	

Notes: Where multiple visits are required to complete sampling, parameters are to be checked prior to sampling for each visit. Enter data under field comments.

TOC	250mL AG	H_2SO_4

2-31 Area Data Gap Groundwater Sampling Field Data

Boeing Plant 2, Seattle/Tukwila, Washington

Station	DP-39	Date	9/16/09
Sample: ID	2-31-DP-39-40-W-0	Field Team: (Initials)	JB
Field Conditions	Cloudy		

Purge Information

Well Diameter (in.)	1"
Well Depth (ft.)	141
Initial Depth to Water (ft.)	
Depth of Water Column	
3 Casing Volumes	
1 Casing Volume	

Purge Method (circle) : Submersible pump / Bladder Pump / (Peristaltic Pump) / Other: :

Start Time	1155
End Time	1335
Total Gallons Purged	2.5 gallons

Time	Gallons	DTW (wells only)	pH	Cond.	NTU	DO	Temp.	ORP	Appearance
1205	1.0		9.97	0.656 mS/cm	57.5	0.31 mg/L	18.69	-10.8	cloudy
1208	1.2		9.97	0.656 mS/cm	61.5	0.24 mg/L	18.53	-20.6	cloudy
1211	1.4		9.99	0.657 mS/cm	61.5	0.22 mg/L	18.47	-29.0	cloudy
1214	1.6		9.99	0.657 mS/cm	68.9	0.21 mg/L	18.33	-35.7	cloudy
1217	1.8		10.00	0.656 mS/cm	67.4	0.20 mg/L	18.28	-41.6	cloudy
1220	2.0		10.00	0.656 mS/cm	66.0	0.20 mg/L	18.29	-46.4	cloudy
1223	2.2		10.00	0.656 mS/cm	67.0	0.20 mg/L	18.28	-50.4	cloudy

Sample Information

Sample Method(s) (circle): (Peristaltic pump) / Submersible pump / Bladder Pump / Other

Analysis	Time	Bottle Type	Preservative/Filtration	Comments
VOCs	1240	3-40mL VOAs	HCl	
Dissolved Metals	1240	1-125mL HDPE/1-500mL HDPE	HNO_3/FILTERED IN FIELD	+ Mercury
Total Metals				
Chromium VI				
Total and WAD CN	1240	1-500mL HDPE	NA	
TPH-Dx, TPH-Gx	1240	2-500mL AG/2-40mL VOAs	NA/HCl	
SVOCs	1240	4-500mL AG	NA/ICE	2 S/M PAHs + 2 SVOCs
PCBs	1240	2-1L AG		
Redox	1240	See below		

End Time: 1335

Comments / Exceptions:

Presence of floating product? YES / (NO) Presence of sinking product? YES / (NO)

TDS	1L-HDPE	NA	Ferrous Iron Hach kit = 1.8 mg/L
Density	1L-HDPE	NA	
Nitrate/Nitrite/Sulfate	1-500mL HDPE	NA	
AMONNIA	500mL HDPE	H_2SO_4	
Sulfide	500mL HDPE	NaOH	

Notes: Where multiple visits are required to complete sampling, parameters are to be checked prior to sampling for each visit. Enter data under field comments.

TOC 250mL AG H_2SO_4

2-31 Area Data Gap Groundwater Sampling Field Data

Boeing Plant 2, Seattle/Tukwila, Washington

Station	DP-39	Date	9/14/09
Sample: ID	2-31-DP-39-GB-W-0	Field Team: (Initials)	JB
Field Conditions	Cloudy		

Purge Information

Well Diameter (in.)	1"
Well Depth (ft.)	14'
Initial Depth to Water (ft.)	
Depth of Water Column	
3 Casing Volumes	
1 Casing Volume	

Purge Method (circle) : Submersible pump / Bladder Pump / (Peristaltic Pump) / Other: : _____

Start Time	1015
End Time	1245
Total Gallons Purged	1.5 gallons

Time	Gallons	DTW (wells only)	pH	Cond.	NTU	DO	Temp.	ORP	Appearance
1028	.4		7.26	15.83	47.5	0.35 mg/L	18.02	99.6	clear
1031	.5		7.58	15.86	40.2	0.26 mg/L	17.92	80.0	clear
1035	.6		7.94	15.86	33.1	0.23 mg/L	17.98	18.6	clear
1038	.7		8.08	15.87	31.6	0.21 mg/L	17.95	-6.7	clear
1041	.8		8.22	15.87	31.1	0.20 mg/L	17.95	-36.6	clear
1044	.9		8.28	15.86	30.0	0.22 mg/L	17.94	-58.5	clear
1047	1.0		8.36	15.87	27.9	0.23 mg/L	17.90	-79.2	clear
1050	1.1		8.40	15.88	27.9	0.24 mg/L	17.86	-84.2	clear
1053	1.2		8.44	15.90	27.4	0.24 mg/L	17.86	-92.7	clear

Sample Information

Sample Method(s) (circle): (Peristaltic pump) / Submersible pump / Bladder Pump / Other

Analysis	Time	Bottle Type	Preservative/Filtration	Comments
VOCs	1110	3-40mL VOAs	HCl	
Dissolved Metals	1110	1-1L HDPE/1-500mL HDPE	HNO_3 / FIELD FILTERED	+Mercury
Total Metals				
Chromium VI				
Total and WAD CN	1110	1-500mL HDPE	NA	
TPH-Dx, TPH-Gx	1110	2-500mL AG/2-40mL VOA	NA / HCl	
SVOCs	1110	4-500mL	NA	2 SIM PAHs + 25VOC
PCBs	1110	2-1L AG	NA	
Redox	1110	See below		

End Time 1245

Comments / Exceptions:

Presence of floating product? YES / (NO) Presence of sinking product? YES / (NO)

TDS	1L HDPE	NA	Ferrous Iron Hach kit = 4.0 mg/L
Density	1L HDPE	NA	
Nitrate/Nitrite	500mL HDPE	NA	Water is pumping slowly
Ammonia	500mL HDPE	H_2SO_4	
Sulfide	500mL HDPE	NaOH	

Notes: Where multiple visits are required to complete sampling, parameters are to be checked prior to sampling for each visit. Enter data under field comments.

TOC	250mL AG	H_2SO_4

2-31 Area Data Gap Groundwater Sampling Field Data

Boeing Plant 2, Seattle/Tukwila, Washington

Station	DP-44	Date	9/21/09
Sample: ID	2-31-DP-44-10-W-0	Field Team: (Initials)	KA
Field Conditions	Cool, Clear		

Purge Information

Well Diameter (in.)	1"
Well Depth (ft.)	10'
Initial Depth to Water (ft.)	
Depth of Water Column	
3 Casing Volumes	
1 Casing Volume	

Purge Method (circle) : Submersible pump / Bladder Pump / (Peristaltic Pump) / Other: : _____

Start Time	0537
End Time	0633
Total Gallons Purged	1.7

Time	Gallons	DTW (wells only)	pH	Cond.	NTU	DO	Temp.	ORP	Appearance
0550	1.0		7.06	1.416	2.44	0.20	15.55	162.4	clear
0553	1.1		7.06	1.365	1.39	0.12	15.61	154.6	clear
0556	1.2		7.06	1.362	1.20	0.10	15.62	149.4	clear
0559	1.3		7.05	1.351	1.04	0.09	15.63	139.8	clear
0602	1.4		7.05	1.348	0.89	0.08	15.65	136.4	clear
0605	1.5		7.04	1.345	0.77	0.08	15.65	134.1	clear
0608	1.6		7.03	1.341	0.71	0.08	15.63	130.6	clear
0611	1.7		7.03	1.338	0.27	0.08	15.64	128.8	clear

Sample Information

Sample Method(s) (circle): (Peristaltic pump) / Submersible pump / Bladder Pump / Other

Analysis	Time	Bottle Type	Preservative/Filtration	Comments
VOCs	0613	3-40mL VOA	HCl	
Dissolved Metals	0613	1-LHDPE, 1-500mL HDPE	HNO_3/Filtered	LL Hg
Total Metals				
Chromium VI				
Total and WAD CN				
TPH-Dx, TPH-Gx				
SVOCs				
PCBs	0613	2-1L Amber	NA	
Redox				

End Time 0633

Comments / Exceptions:

Presence of floating product? YES / (NO) Presence of sinking product? YES / (NO)

Notes: Where multiple visits are required to complete sampling, parameters are to be checked prior to sampling for each visit. Enter data under field comments.

2-31 Area Data Gap Groundwater Sampling Field Data

Boeing Plant 2, Seattle/Tukwila, Washington

Station	DP-20	Date	9/21/09
Sample: ID	2-31-DP-20-19-W-0	Field Team: (Initials)	KA
Field Conditions	Sunny Clear		

Purge Information

Well Diameter (in.)	1"
Well Depth (ft.)	14'
Initial Depth to Water (ft.)	
Depth of Water Column	
3 Casing Volumes	
1 Casing Volume	

Purge Method (circle) : Submersible pump / Bladder Pump / (Peristaltic Pump) / Other: : _____

Start Time	0650
End Time	0812
Total Gallons Purged	2.9

Time	Gallons	DTW (wells only)	pH	Cond.	NTU	DO	Temp.	ORP	Appearance
0708	1.2		6.99	0.604	86.0	0.13	13.96	-13.8	cloudy, gray
0720	2.0		6.98	0.600	17.0	0.20	14.02	-23.2	clearing
0723	2.1		6.97	0.601	13.9	0.19	14.05	-22.9	clear
0726	2.2		6.97	0.601	12.0	0.18	14.11	-27.1	clear
0729	2.3		6.97	0.601	9.93	0.15	14.23	-30.7	clear
0732	2.4		6.97	0.602	11.3	0.15	14.24	-32.2	clear
0735	2.5		6.97	0.604	10.57	0.16	14.28	-31.7	clear
0738	2.6		6.97	0.605	10.73	0.17	14.32	-32.9	clear
0741	2.7		6.96	0.605	10.89	0.17	14.37	-35.7	clear
0744	2.8		6.96	0.605	10.99	0.17	14.41	-35.7	clear
0747	2.9		6.96	0.605	10.61	0.18	14.40	-36.0	clear

Sample Information

Sample Method(s) (circle): (Peristaltic pump) / Submersible pump / Bladder Pump / Other

Analysis	Time	Bottle Type	Preservative/Filtration	Comments
VOCs	0749	3-40mL VOAs	HCl	
Dissolved Metals	0749	1-1L HDPE, 1-500mL HDPE	HNO_3 - field filtered	LL Hg
Total Metals				
Chromium VI				
Total and WAD CN				
TPH-Dx, TPH-Gx				
SVOCs				
PCBs				
Redox				

End Time 0812

Comments / Exceptions:

Presence of floating product? YES / (NO) Presence of sinking product? YES / (NO)

Notes: Where multiple visits are required to complete sampling, parameters are to be checked prior to sampling for each visit. Enter data under field comments.

2-31 Area Data Gap Groundwater Sampling Field Data

Boeing Plant 2, Seattle/Tukwila, Washington

Station	KA DP-13	Date	9/21/09
Sample: ID	2-31-DP-13-10-W-0	Field Team: (Initials)	KA
Field Conditions	Sunny 80°F		

Purge Information

Well Diameter (in.)	1"
Well Depth (ft.)	14'
Initial Depth to Water (ft.)	
Depth of Water Column	
3 Casing Volumes	
1 Casing Volume	

Purge Method (circle) : Submersible pump / Bladder Pump / (Peristaltic Pump) / Other: :

Start Time	1350
End Time	1609
Total Gallons Purged	2.4

Time	Gallons	DTW (wells only)	pH	Cond.	NTU	DO	Temp.	ORP	Appearance
1444	2.0		7.00	0.514	11.8	0.32	19.74	47.0	clear, pale Yellow
1447	2.1		7.00	0.515	10.78	0.05	19.67	41.1	clear, pale Yellow
1450	2.2		7.00	0.514	8.32	0.02	19.72	40.9	clear, pale Yellow
1453	2.3		7.00	0.513	8.60	0.02	19.75	38.2	clear, pale yellow
1456	2.4		7.00	0.514	9.62	0.02	19.80	37.9	clear, pale Yellow

Sample Information

Sample Method(s) (circle): (Peristaltic pump) / Submersible pump / Bladder Pump / Other

Analysis	Time	Bottle Type	Preservative/Filtration	Comments
VOCs	1458	3-40mL VOAs	HCl	
Dissolved Metals	1459	1-1L HDPE, 1-500mL HDPE	HNO3, Filtered	LL Hg
Total Metals				
Chromium VI				
Total and WAD CN	1458	1-500mL HDPE	NA	
TPH-Dx, TPH-Gx				
SVOCs	1458	4-500mL AG	NA	
PCBs	1458	2-1L AG	NA	
Redox				

End Time 1604

Comments / Exceptions:

Presence of floating product? YES / (NO) Presence of sinking product? YES / (NO)

Can smell exhaust from passing cars. Trying to minimize impact on samples.

Notes: Where multiple visits are required to complete sampling, parameters are to be checked prior to sampling for each visit. Enter data under field comments.

2-31 Area Data Gap Groundwater Sampling Field Data

KA Boeing Plant 2, Seattle/Tukwila, Washington

Station	DP-B14	Date	9/21/09
Sample: ID	2-31-DP-14-12-W-0	Field Team: (Initials)	KA
Field Conditions	Sunny ~80°F		

Purge Information

Well Diameter (in.)	1"
Well Depth (ft.)	18'
Initial Depth to Water (ft.)	
Depth of Water Column	
3 Casing Volumes	
1 Casing Volume	

Purge Method (circle) : Submersible pump / Bladder Pump / (Peristaltic Pump) / Other: :

Start Time	1402
End Time	1525
Total Gallons Purged	1.1

Time	Gallons	DTW (wells only)	pH	Cond.	NTU	DO	Temp.	ORP	Appearance
1407 ~~1402~~ KA	0.4		7.08	0.375	43.3	0.03	19.21	36.2	cloudy
1410	0.5		7.06	0.333	27.2	0.03	18.91	42.2	cloudy
1413	0.6		7.05	0.323	22.5	0.03	18.86	43.5	clearing
1416	0.7		7.04	0.316	19.2	0.04	18.83	44.3	clearing
1419	0.8		7.03	0.324	16.6	0.03	18.80	44.9	clear
1422	0.9		7.04	0.324	18.4	0.02	18.76	45.6	clear
1425	1.0		7.04	0.323	16.7	0.02	18.79	45.3	clear

Sample Information

Sample Method(s) (circle): (Peristaltic pump) / Submersible pump / Bladder Pump / Other

Analysis	Time	Bottle Type	Preservative/Filtration	Comments
VOCs	1430	5-40mL VOA's	HCl	
Dissolved Metals	1430	1-1L HDPE, 1-500mL HDPE	HNO3 Filtered	2L Hg
Total Metals				
Chromium VI				
Total and WAD CN	1430	1-500mL HDPE		
TPH-Dx, TPH-Gx				
SVOCs	1430 4	2-500mL Amber	NA	2-5iM PAH, 2-SVOC's
PCBs	1430	2-1L Amber	NA	
Redox				

End Time 1525

Comments / Exceptions:

Presence of floating product? YES / (NO) Presence of sinking product? YES / (NO)

Notes: Where multiple visits are required to complete sampling, parameters are to be checked prior to sampling for each visit. Enter data under field comments.

2-31 Area Data Gap Groundwater Sampling Field Data

Boeing Plant 2, Seattle/Tukwila, Washington

Station	DP-19	Date	9/24/09
Sample: ID	2-31-DP-19-10-W-0,1	Field Team: (Initials)	JB
Field Conditions	Cloudy		

Purge Information

Well Diameter (in.)	1"
Well Depth (ft.)	14'
Initial Depth to Water (ft.)	
Depth of Water Column	
3 Casing Volumes	
1 Casing Volume	

Purge Method (circle) : Submersible pump / Bladder Pump / (Peristaltic Pump) / Other: : _____

Start Time	0755
End Time	0902
Total Gallons Purged	2.8

Time	Gallons	DTW (wells only)	pH	Cond. (mS/cm)	NTU	DO	Temp.	ORP	Appearance
0815	1.2	—	7.67	0.194	135	0.13	16.09	13.0	cloudy
0818	1.4	—	7.68	0.193	100.1	0.18	16.10	-10.8	clearing
0821	1.6	—	7.69	0.193	64.6	0.21	16.12	-23.0	clearing
0824	1.8	—	7.71	0.192	33.2	0.25	16.13	-33.0	clear
0827	2.0	—	7.72	0.192	27.5	0.18	16.12	-44.3	clear
0830	2.2	—	7.70	0.191	23.3	0.24	16.13	-53.6	clear
0833	2.4	—	7.71	0.191	17.4	0.22	16.12	-59.9	clear
0836	2.6	—	7.73	0.191	18.1	0.23	16.13	-66.2	clear
0839	2.8	—	7.73	0.191	16.8	0.21	16.13	-71.1	clear

Sample Information

Sample Method(s) (circle): (Peristaltic pump) / Submersible pump / Bladder Pump / Other

Analysis	Time	Bottle Type	Preservative/Filtration	Comments
VOCs	0845	3-40mL VOA	HCl	Duplicate
Dissolved Metals	0845	1-1L HDPE/1-500mL HDPE	HNO_3/field filtered	Duplicate + LL Hg
Total Metals				
Chromium VI				
Total and WAD CN				
TPH-Dx, TPH-Gx				
SVOCs				
PCBs				
Redox				

End Time: 0902

Comments / Exceptions:

Presence of floating product? YES / (NO) Presence of sinking product? YES / (NO)

Duplicate Time: 0855

Notes: Where multiple visits are required to complete sampling, parameters are to be checked prior to sampling for each visit. Enter data under field comments.

2-31 Area Data Gap Groundwater Sampling Field Data

Boeing Plant 2, Seattle/Tukwila, Washington

Station	DP-02	Date	9/24/09
Sample: ID	2-31-DP-02-10-W-0	Field Team: (Initials)	JB
Field Conditions	cloudy		

Purge Information

Well Diameter (in.)	1"
Well Depth (ft.)	14'
Initial Depth to Water (ft.)	
Depth of Water Column	
3 Casing Volumes	
1 Casing Volume	

Purge Method (circle) : Submersible pump / Bladder Pump / (Peristaltic Pump) / Other: : _____

Start Time	1105
End Time	1142
Total Gallons Purged	1.8

Time	Gallons	DTW (wells only)	pH	Cond.	NTU	DO	Temp.	ORP	Appearance
1012	0.8	–	7.85	0.548	57.7	0.27	20.37	63.7	cloudy
1015	1.0		7.85	0.549	55.7	0.30	20.37	57.6	cloudy
1018	1.2		7.87	0.547	36.0	0.24	20.53	51.8	clear
1021	1.4		7.89	0.543	20.5	0.24	20.48	48.7	clear
1024	1.6		7.90	0.540	9.70	0.25	20.53	45.9	clear
1027	1.8		7.91	0.537	8.16	0.23	20.54	42.1	clear

Sample Information

Sample Method(s) (circle): (Peristaltic pump) / Submersible pump / Bladder Pump / Other

Analysis	Time	Bottle Type	Preservative/Filtration	Comments
VOCs	1040	3-40mL VOA's	HCl	
Dissolved Metals	1040	1-1L HDPE / 1-500mL HDPE	HNO_3/filtered	+ LL Hg
Total Metals				
Chromium VI				
Total and WAD CN	1040	1-500mL HDPE	NA	
TPH-Dx, TPH-Gx	1040	2-500mL AG/2-40mL VOA	NA / HCl	
SVOCs	1040	4-500mL AG	NA	2 PAH + 2 SVOCs
PCBs				
Redox				

End Time 1142

Comments / Exceptions:

Presence of floating product? YES / (NO) Presence of sinking product? YES / (NO)

Notes: Where multiple visits are required to complete sampling, parameters are to be checked prior to sampling for each visit. Enter data under field comments.

2-31 Area Data Gap Groundwater Sampling Field Data

Boeing Plant 2, Seattle/Tukwila, Washington

Station	PP-02	Date	9/24/09
Sample: ID	2-31-DP-02-40-W-0	Field Team: (Initials)	JB
Field Conditions	Cloudy		

Purge Information

Well Diameter (in.)	1"
Well Depth (ft.)	44'
Initial Depth to Water (ft.)	
Depth of Water Column	
3 Casing Volumes	
1 Casing Volume	

Purge Method (circle) : Submersible pump / Bladder Pump / (Peristaltic Pump) / Other: : _____

Start Time	1220
End Time	1428
Total Gallons Purged	5.8

Time	Gallons	DTW (wells only)	pH	Cond.	NTU	DO	Temp.	ORP	Appearance
1255	3.4	—	7.73	1.196	1545	0.49	17.63	-91.5	cloudy
1258	3.6		7.71	1.194	1359	0.39	17.61	-92.3	cloudy
1301	3.8		7.69	1.191	1017	0.31	17.56	-93.2	cloudy
1310	4.3		7.68	1.189	725	0.25	17.47	-95.2	cloudy
1316	4.6		7.70	1.188	565	0.24	17.49	-96.3	cloudy
1325	5.0		7.71	1.187	177	0.23	17.54	-97.1	Cloudy
1333	5.4		7.72	1.187	157	0.24	17.86	-98.0	cloudy
1336	5.6		7.73	1.186	159	0.22	17.91	-99.1	cloudy
1339	5.8		7.75	1.188	164	0.23	17.94	-99.9	cloudy

Sample Information

Sample Method(s) (circle): (Peristaltic pump) / Submersible pump / Bladder Pump / Other

Analysis	Time	Bottle Type	Preservative/Filtration	Comments
VOCs	1400	3-40mL VOA	HCl	
Dissolved Metals	1400	1-1L HDPE/1-500mL HDPE	HNO3/filtered	+ LL Hg
Total Metals				
Chromium VI				
Total and WAD CN	1400	1-500mL HDPE	NA	
TPH-Dx, TPH-Gx	1400	2-500mL AG/2-40mL VOA	NA/HCl	
SVOCs	1400	4-500mL AG	NA	2 PAH + 2 SVOCs
PCBs				
Redox				

End Time 1428

Comments / Exceptions:

Presence of floating product? YES / (NO) Presence of sinking product? YES / (NO)

Notes: Where multiple visits are required to complete sampling, parameters are to be checked prior to sampling for each visit. Enter data under field comments.

ENVIRONMENTAL PARTNERS INC 295 NE Gilman Boulevard, Suite 201 Issaquah, Washington 98027 ph 425.395.0010 fax 425.395.0011

2-31 Area Well Installation and Development Field Book Corrective Measures Study Data Gaps Investigation

Boeing Plant 2
Seattle/Tukwila, Washington
Project Number 17511.1

Environmental Partners, Inc.
295 NE Gilman Blvd. Suite 201
Issaquah, Washington 98027
(425) 395-0010

Multiparameter Probe Instrument Calibration Form

Meter Type	Manufacturer	Model Number	Mfg. Serial#	Rental Co. Serial #	Date	Time
Multiparameter	YSI	556MPS	08B100976	—	9/8/09	0740

Calibrated to Autocal Solution Manufacturer Aurical Lot Number 7359 exp 8-12-10

pH = 4.00 Turbidity = _____ Temperature = 14.03

Conductivity = 4.49 Dissolved Oxygen = _____ Salinity = _____

Turbidity Meter

Comments: ORP = 228.0

Meter Type	Manufacturer	Model Number	Mfg. Serial#	Rental Co. Serial #	Date	Time
Turbidity	LaMotte	2020e	Me14943	—	9/8/09	0752

Calibrated to Autocal Solution Manufacturer _____ Lot Number _____

pH = _____ Turbidity = _____ Temperature = _____

Conductivity = _____ Dissolved Oxygen = _____ Salinity = _____

Turbidity Meter 0 = 0.0 1 = 1.06 10 = 9.92

Comments: AMCO 1.0 Lot P994875
10 Lot P897234

Meter Type	Manufacturer	Model Number	Mfg. Serial#	Rental Co. Serial #	Date	Time

Calibrated to Autocal Solution Manufacturer _____ Lot Number _____

pH = _____ Turbidity = _____ Temperature = _____

Conductivity = _____ Dissolved Oxygen = _____ Salinity = _____

Turbidity Meter

Comments:

Meter Type	Manufacturer	Model Number	Mfg. Serial#	Rental Co. Serial #	Date	Time

Calibrated to Autocal Solution Manufacturer _____ Lot Number _____

pH = _____ Turbidity = _____ Temperature = _____

Conductivity = _____ Dissolved Oxygen = _____ Salinity = _____

Turbidity Meter

Comments:

Multiparameter Probe Instrument Calibration Form

Meter Type	Manufacturer	Model Number	Mfg. Serial#	Rental Co. Serial #	Date	Time

Calibrated to Autocal Solution Manufacturer ____________ Lot Number ____________

pH = ____________ Turbidity = ____________ Temperature = ____________

Conductivity = ____________ Dissolved Oxygen = ____________ Salinity = ____________

Turbidity Meter						

Comments:

Meter Type	Manufacturer	Model Number	Mfg. Serial#	Rental Co. Serial #	Date	Time

Calibrated to Autocal Solution Manufacturer ____________ Lot Number ____________

pH = ____________ Turbidity = ____________ Temperature = ____________

Conductivity = ____________ Dissolved Oxygen = ____________ Salinity = ____________

Turbidity Meter						

Comments:

Meter Type	Manufacturer	Model Number	Mfg. Serial#	Rental Co. Serial #	Date	Time

Calibrated to Autocal Solution Manufacturer ____________ Lot Number ____________

pH = ____________ Turbidity = ____________ Temperature = ____________

Conductivity = ____________ Dissolved Oxygen = ____________ Salinity = ____________

Turbidity Meter						

Comments:

Meter Type	Manufacturer	Model Number	Mfg. Serial#	Rental Co. Serial #	Date	Time

Calibrated to Autocal Solution Manufacturer ____________ Lot Number ____________

pH = ____________ Turbidity = ____________ Temperature = ____________

Conductivity = ____________ Dissolved Oxygen = ____________ Salinity = ____________

Turbidity Meter						

Comments:

2-31 Data Gap Waste Handling Dash Card

- **Boeing Project Manager:** Will Ernst
- **Boeing Field Engineer:** Joe Flaherty, Jennifer Parsons, or Fred Wallace
- **Boeing Waste Specialist:** Dan Machut
- **Consultant:** Golder and EPI
- **Contractor:** Cascade Drilling

Contractor Responsibilities

- Forecast type and volume of waste to be generated prior to mobilization, communicate needs to Boeing Field Engineer to ensure proper containers are ordered.
- Call Plant 2 Materials Handling to transport containers to project area.
- Fill containers with generated waste. Once containers are full and properly labeled, place containers on pallet and band containers to prepare them for transportation to designated accumulation area.

Consultant Responsibilities

- Apply appropriate soil container identification number and labels. Initiate "Container Log".
- Collect composite sample of individual container when full or sampling effort is complete. Assign appropriate sample ID per QAPP. Complete COC including program identifier.
- Secure lid and oversee contractors place containers on pallet and band containers for transportation to building 2-120 accumulation area, or alternate location assigned by Boeing Field Engineer.
- Contact Plant 2 Materials Handling for pickup and transportation to designated accumulation area.
- Confirm pickup and transportation to designated accumulation area and verify transport within three days.
- Forward copy of completed container log to Waste Tracking Group by email.

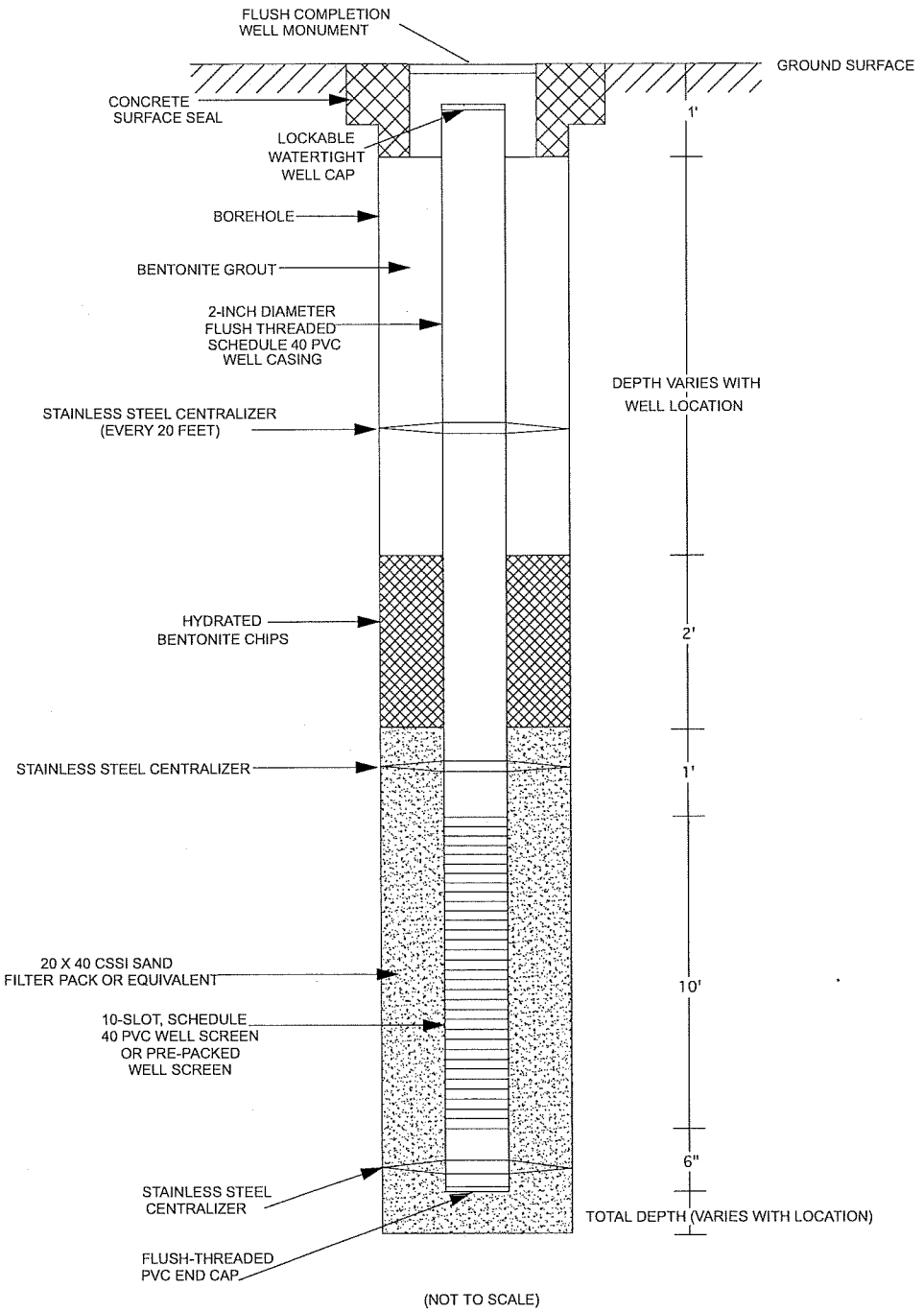
Boeing Field Engineer Responsibilities

- Help identify types of containers needed and determine accumulation area.
- Order necessary containers from Drum Yard.
- Supply container labels and drum identification numbers.

Boeing Waste Specialist Responsibilities

- Create waste characterization profile for waste containers based on composite characterization samples.

Contact List
Will Ernst: 206-655-7724
Joe Flaherty: 206-769-5987
Jennifer Parsons: 206-715-7981
Fred Wallace: 206-930-0461
Dan Machut: 206-655-8344
Plant 2 Materials Handling: 206-655-3266



ENVIRONMENTAL PARTNERS INC
295 NE Gilman Boulevard, Suite 201
Issaquah, Washington 98027

Data Gaps Investigation Work Plan
2-31 Area
Boeing Plant 2
Seattle/Tukwila, Washington

Figure 3-1
Generalized Deeper Monitoring Well
Construction Drawing

SHEET	DRAWN BY	REVIEWED BY	DATE
1 of 1	ARM	DCK	03/25/09

ENVIRONMENTAL PARTNERS INC

HSA with Well Install

Boring/Well Designation: PL2-507C

Client: Boeing
Logged By: K. Addis
Date of Drilling: 8/24/09
Site Address: East Marginal Way South
Drilling Contractor: Cascade Drilling Inc
Method: HSA
Drill Rig: CME 55
Borehole Size: 8"

Site Personnel:
Kris Addis - EPI
Jill Lamberts - Golder
Ted Sager - Golder
Jeremiah Jenkins. Cascade
Andy Flagan - Cascade - Driller
Kerry Lamphew - Cascade

SUBSURFACE PROFILE				SAMPLE								
Depth	Log	USCS Code	DESCRIPTION Name, Color: Moisture:Density; Plasticity; Dilatency:Description; Other	Interval	Recpvery %	Blows / 6"	Sample	PID (ppm)	Sheen	Well Data	Comments
			Ground Surface								Flush-Completion
			0-0.25 Asphalt								
5		SW	Well-Graded Sand with gravel Dark gray, moist mostly f-c Sand with little gravel + trace silt FILL			3-2-3					
10			Loose, moist, mostly fine sand with trace silt			1-3-4					
15			wood debris			2-3-6					2" PVC blank
20		SP	Poorly-Graded Sand Dark gray, moist, mostly fine sand with brown silty sand lens			2-2-3					
25		SP	Dark gray saturated, mostly f-m sand with red + white sand grains			2-2-3					
30			No Recovery - Heave			50/6+ Heave					
35			No Recovery - Heave		NR						8' Heave
40		SP	Dark gray, sat, mostly f-m sand with red + white grains			50/6					Heave
45											8' Heave

Project No. 17511.1 2-31

ENVIRONMENTAL PARTNERS INC

HSA with Well Install

Boring/Well Designation: PL2-507C

Client: Boeing
Logged By: K. Addis
Date of Drilling: 8/24/09
Site Address: East Marginal Way South
Drilling Contractor: Cascade Drilling, Inc
Method: HSA
Drill Rig: CME 85
Borehole Size: 8"

Site Personnel:
Kris Addis - EPI
Jill Lamberts - Golder
Ted Sager - Golder
Jeremiah Jenkins - Cascade
Andy Flagan - Cascade - Driller
Kerry Lamphere - Cascade

SUBSURFACE PROFILE				SAMPLE				PID (ppm)	Sheen	Well Data	Comments
Depth	Log	USCS Code	DESCRIPTION Name, Color: Moisture:Density; Plasticity; Dilatency:Description; Other	Interval	Recpvery %	Blows / 6"	Sample				
			Ground Surface								
45		SP	same as above								Centralizer
50		ML	SILT Dark gray; sat.; mostly silt			5-3-2					← Hydrated Bentonite Chips
55		SP	Dark gray, sat, mostly f-m Sand w/ silt			4-5-5					
55.5		ML	Dark gray; sat, mostly silt								
60		ML	Dark gray; sat, mostly silt			5-10-11			62		← Hydrated Bentonite Chips
64									64		
65		ML/SP	Interbedded silt and fine sand sat, 1cm beds			5-8-12 8-50/6" (KA)			65		Centralizer
70		SP	Dark gray; sat, mostly fine sand with interbedded silt lenses			8-50/6"					2/12 Monterey Sand
75									75		
75.5		ML/CL	Clayey Silt. Dark gray sat. mostly silt with some clay			5, 6, 7					
80			Becomes green-gray with sand + gravel len ~1-inch thick			11, 14, 23					
			Interbedded End of Borehole @ 81.5'								

Project No. 17511.1 2-31

ENVIRONMENTAL PARTNERS INC

HSA with Well Install

Boring/Well Designation: PL2-507B

Client: Boeing
Logged By: K. Addis
Date of Drilling: 8/25/09
Site Address: East Marginal Way South
Drilling Contractor: Cascade Drilling, Inc
Method: HSA
Drill Rig: CME 85
Borehole Size: 8"

Site Personnel:
Kris Addis - EPI
Steve Stivers - CDI
Kerry Lamphear - CDI
Andy Flagan - CDI - Driller
Jill Lamberts - Golder
Ted Sager - Golder

SUBSURFACE PROFILE				SAMPLE				PID (ppm)	Sheen	Well Data	Comments
Depth	Log	USCS Code	DESCRIPTION Name, Color: Moisture:Density; Plasticity; Dilatency:Description; Other	Interval	Recpvery %	Blows / 6"	Sample				
			Ground Surface								
			3" Asphalt								Flush-Mount Completion
		SP	Poorly Graded Sand			10-11-12					Concrete Surface Seal
5			Brick debris			10-10-11					
10		ML	SILT Dark gray, moist, mostly silt with organic lens at 10			1-2-5					
		ML	SILT Dark gray, moist, silt								
15		SP-SM	Poorly Graded Sand with Silt Dark gray, sat, mostly f-m sand with little silt + trace gravel + brick debris			1-2-5					
20		SP	Poorly Graded Sand Dark gray, sat, mostly f-m sand with trace silt & trace brick debris			3,3,3					2" PVC Blank
		22.5 SP	Poorly Graded Sand Dark gray, sat, mostly f-m sand with red & white sand grains			3,3,5					Hydrated Bentonite chips
30			Heave, No Recovery		NR	4,4,5					
35			Heave, No Recovery		NR	50/6"					34
40			Heave		NR	8,12,12					10-slot pre-packed screen
45											

Project No. 17511.1 2-31

ENVIRONMENTAL PARTNERS INC

HSA with Well Install

Boring/Well Designation: PL2-507B

Client: Boeing
Logged By: K. Addis
Date of Drilling: 8/25/09
Site Address: East Marginal Way
Drilling Contractor: Cascade Drilling, Inc
Method: HSA
Drill Rig: CME 85
Borehole Size: 8"

Site Personnel:
Kris Addis - EPI
Steve Stivers - CDI
Kelly Lamplew - CDI
Andy Flagan - Cascade - Driller
Jill Lamberts - Golder
Ted Sager - Golder

SUBSURFACE PROFILE				SAMPLE								
Depth	Log	USCS Code	DESCRIPTION Name, Color: Moisture:Density; Plasticity; Dilatency:Description; Other	Interval	Recpvery %	Blows / 6"	Sample	PID (ppm)	Sheen	Well Data	Comments
			Ground Surface								
45											12/20 Monterey Sand
50		SP-SM	Poorly-Graded Sand with Silt Dark gray, sat. mostly f-m sand with little silt + interbedded silt layers								
			End of Borehole								

Project No. 17511.1 2-31

ENVIRONMENTAL PARTNERS INC

HSA with Well Install

Boring/Well Designation: _____

Client:	***Site Personnel:***
Logged By:	
Date of Drilling:	
Site Address:	
Drilling Contractor:	
Method:	
Drill Rig:	
Borehole Size:	

SUBSURFACE PROFILE				SAMPLE							
Depth	Log	USCS Code	DESCRIPTION Name, Color: Moisture:Density; Plasticity; Dilatency:Description; Other	Interval	Recpvery %	Blows / 6"	Sample	PID (ppm)	Sheen	Well Data	Comments
			Ground Surface								

Project No.

ENVIRONMENTAL PARTNERS INC

HSA with Well Install

Boring/Well Designation: _____

Client:	***Site Personnel:***
Logged By:	
Date of Drilling:	
Site Address:	
Drilling Contractor:	
Method:	
Drill Rig:	
Borehole Size:	

SUBSURFACE PROFILE				SAMPLE				PID (ppm)	Sheen	Well Data	Comments
Depth	Log	USCS Code	DESCRIPTION Name, Color: Moisture:Density; Plasticity; Dilatency:Description; Other	Interval	Recpvery %	Blows / 6"	Sample				
			Ground Surface								

Project No.

Monitoring Well Development Field Measurements Record

Job Name/Location: 2-31 Area Data Gaps - Boeing Plant 2

Job Number: 17511.1

Date: 9/8/09

Well #: PL2-507B

Page Number:

Time	Depth to Water (ft.)	Total Depth of Well (ft.)	Volume Purged (gal.)	pH	Cond.	Turbidity (NTU)	Temp. (oC)	Visual Observations
0930	10.31	~~103~~ KA → 110.0	20					Muddy - Bail & Surge
0940			25					Muddy - Bail & Surge
1005			30					Begin pumping - Muddy
1019			40					Cloudy - Dark gray
1028			55					Stop pumping - Change pump.
1038			~~60~~ KA					Resume pumping
1044			65					Cloudy - Dark gray
1048			70			432		Surge - Muddy
1053			77			47.2		Muddy
1058			85			35.4		Clearing
1103			95	5.76	0.463	23.6	14.76	Cloudy
1108			100	5.78	0.460	26.9	14.77	Cloudy
1113			110	5.81	0.460	19.9	14.76	Cloudy

Monitoring Well Development Field Measurements Record

Job Name/Location: 2-31 Area Data Gaps - Boeing Plant 2

Job Number: 17511.1

Date: 9/8/09

Well #: PL2-507B

Page Number: 2

Time	Depth to Water (ft.)	Total Depth of Well (ft.)	Volume Purged (gal.)	pH	Cond.	Turbidity (NTU)	Temp. (oC)	Visual Observations
1118			120	5.84	0.458	21.7	14.78	cloudy
1123			130	5.84	0.457	20.0	14.78	Clearing
1128			140	5.88	0.459	18.4	14.79	Clear
1133			150	5.88	0.465	18.2	14.79	Clear
1138			160	5.86	0.474	17.0	14.81	Clear
1143			170	5.83	0.473	18.0	14.82	Clear Slight odor
1148			180	5.76	0.462	17.3	14.82	Clear
1153			~~180~~ 181	5.75	0.460	19.0	14.83	Clear Pump slowing down
1158			~~200~~ 195	5.75	0.453	21.3	14.85	Clear
1203			~~200~~	5.76	0.452	18.8	14.86	Clear
1206			~~200~~	5.77	0.453	17.2	14.87	Clear
1209			190	5.78	0.451	19.1	14.88	Clear
1212			200	5.80	0.449	18.5	14.88	Clear
1215			205	5.80	0.449	16.4	14.88	Clear

Monitoring Well Development Field Measurements Record

Job Name/Location: 2-31 Area Data Gaps - Boeing Plant 2

Job Number: 17511.1

Date:

Well #: PL2-507B

Page Number:

Time	Depth to Water (ft.)	Total Depth of Well (ft.)	Volume Purged (gal.)	pH	Cond.	Turbidity (NTU)	Temp. (oC)	Visual Observations
1218			200	5.82	0.452	24.0	14.97	Clear Slight odor
1221			202	5.83	0.452	20.1	14.99	Clear Slight odor
1224			204	5.84	0.451	22.4	14.99	Clear slight odor
1227			205	5.85	0.451	15.7	15.01	Clear pump slowing
1230			206	5.85	0.451	18.9	15.08	Clear
1233			207	5.85	0.451	19.2	15.10	Clear
								Development
								Complete
9/9/09	1151	10.33						

Monitoring Well Development Field Measurements Record

Job Name/Location: 2-31 Area Data Gaps - Boeing Plant 2

Job Number: 17511.1

Date:

Well #:

Page Number:

Time	Depth to Water (ft.)	Total Depth of Well (ft.)	Volume Purged (gal.)	pH	Cond.	Turbidity (NTU)	Temp. (oC)	Visual Observations

Monitoring Well Development Field Measurements Record

Job Name/Location: 2-31 Area Data Gaps - Boeing Plant 2

Job Number: 17511.1

Date: 9/8/09

Well #: PL2-507C

Page Number:

Time	Depth to Water (ft.)	Total Depth of Well (ft.)	Volume Purged (gal.)	pH	Cond.	Turbidity (NTU)	Temp. (oC)	Visual Observations
1034		10.26	0					Start pump. - Surge
1040			15					Muddy
1045			30					Clearing
1049			38					Muddy - Surge
1052			41					Surge - Muddy
1058			50					Muddy
1104			60					Cloudy
1109			~~75~~					Cloudy
1114			85					Cloudy
1119			95	5.97	13.50	155	14.05	Surge - Muddy
1124			105	6.03	13.56	80.8	14.14	Clearing
1133			115	5.95	13.45	20.4	13.99	Clear

Well PL2-507C has a dog leg at 6' bgs. Bailer does not fit.

Monitoring Well Development Field Measurements Record

Job Name/Location: 2-31 Area Data Gaps - Boeing Plant 2

Job Number: 17511.1

Date:

Well #: PL2-507C

Page Number:

Time	Depth to Water (ft.)	Total Depth of Well (ft.)	Volume Purged (gal.)	pH	Cond.	Turbidity (NTU)	Temp. (oC)	Visual Observations
1233			220	5.74	13.61	5.07	14.60	Clear, Bubbly. Switch to new battery
1238			230	6.10	13.76	3.57	13.95	Clear, Bubbly
1243			240	6.13	13.75	6.09	13.97	Clear, Bubbly
1248			250	6.15	13.77	3.71	13.95	Clear, Bubbly
1253			260	6.15	13.76	4.27	13.95	Clear, Bubbly
1258			270	6.16	13.76	2.98	13.97	Clear, Bubbly
1303			275	6.15	13.73	2.91	13.97	Clear, Bubbly
1308			285	6.14	13.74	2.31	13.98	Clear, Bubbly
1313			295	6.15	13.74	2.95	13.98	Clear, Bubbly
1318			305	6.14	13.73	3.72	13.98	Clear, Bubbly
1323			315	6.14	13.73	5.84	13.98	Clear, Bubbly
1328			325	6.13	13.77	4.62	13.97	Clear, Bubbly
1333			335	6.13	13.77	2.80	13.98	Clear Bubbly

Monitoring Well Development Field Measurements Record

Job Name/Location: 2-31 Area Data Gaps - Boeing Plant 2

Job Number: 17511.1

Date: 9/8/09

Well #: PL2-507C

Page Number:

Time	Depth to Water (ft.)	Total Depth of Well (ft.)	Volume Purged (gal.)	pH	Cond.	Turbidity (NTU)	Temp. (oC)	Visual Observations
1338			345	6.13	13.77	2.42	13.98	Clear, Bubbly
1343			355	6.12	13.79	4.15	13.96	Clear, Bubbly
1348			365	6.12	13.80	3.39	13.96	Clear Bubbly
1353			375	6.11	13.80	3.48	13.96	Clear Bubbly
1358			385	6.11	13.81	3.65	13.96	Clear Bubbly
1403			395	6.10	13.86	4.54	13.96	Clear less bubbles Pump Slowing
1408			40~~8~~0	6.09	13.~~9~~95 KH	4.38	13.95	Clear
1413			405	6.09	13.86	4.13	13.95	Clear
								Development
								Complete
1145 9/9/09	10.55							

ENVIRONMENTAL PARTNERS INC 295 NE Gilman Boulevard, Suite 201 Issaquah, Washington 98027 ph 425.395.0010 fax 425.395.0011

2-31 Area Well Sampling Field Book
Corrective Measures Study
Data Gaps Investigation

Boeing Plant 2
Seattle/Tukwila, Washington
Project Number 17511.1

Environmental Partners, Inc.
295 NE Gilman Blvd. Suite 201
Issaquah, Washington 98027
(425) 395-0010

Multiparameter Probe Instrument Calibration Form

Meter Type	Manufacturer	Model Number	Mfg. Serial#	Rental Co. Serial #	Date	Time
Multiparameter	Horiba	U-22XD	405300	NA	10/1/09	0740

Calibrated to Autocal Solution Manufacturer Aurical Lot Number 7298

pH = 4.00 = 4.00 Turbidity = 0.0 = 0.0 Temperature = 18.0

Conductivity = .449 S/m = .449 S/m Dissolved Oxygen = 9.54 mg/L Salinity = NA

Turbidity Meter						

Comments: Level Two Solution Lot 6990-020 Exp. 3/31/2010

pH = 6.860 = 6.87 Turb = 40NTU = 36NTU Cond 53 mS/cm = 53.9 mS/cm

Meter Type	Manufacturer	Model Number	Mfg. Serial#	Rental Co. Serial #	Date	Time
Turbidity	LaMotte	2020e	ME-14943	—	10/1/09	0750

Calibrated to Autocal Solution Manufacturer _____ Lot Number _____

pH = _____ Turbidity = _____ Temperature = _____

Conductivity = _____ Dissolved Oxygen = _____ Salinity = _____

Turbidity Meter	0 = 0.02	10 = 9.89	100 = 99.5			

Comments:

Meter Type	Manufacturer	Model Number	Mfg. Serial#	Rental Co. Serial #	Date	Time
Multiparameter	YSI	556 MPS	06B1220AA	001933	10/2/09	0806

Calibrated to Autocal Solution Manufacturer Aurical Lot Number 7298

pH = 4 = 4.0 Turbidity = — Temperature = 17.9

Conductivity = 4.49 Dissolved Oxygen = _____ Salinity = —

Turbidity Meter						

Comments:

Meter Type	Manufacturer	Model Number	Mfg. Serial#	Rental Co. Serial #	Date	Time
Turbidity	Lamotte	2020e	ME 14943	—	10/2/09	0750

Calibrated to Autocal Solution Manufacturer _____ Lot Number _____

pH = _____ Turbidity = _____ Temperature = _____

Conductivity = _____ Dissolved Oxygen = _____ Salinity = _____

Turbidity Meter	0 = 0.01	10 = 9.76	100 = 98.7			

Comments:

Multiparameter Probe Instrument Calibration Form

Meter Type	Manufacturer	Model Number	Mfg. Serial#	Rental Co. Serial #	Date	Time
Multiparameter	YSI	556 MPS	06A1220AA	001833	10/5/09	0730

Calibrated to Autocal Solution Manufacturer Autocal Lot Number 7269

pH = ~~4.49=Stan=4.50=S/C~~ 4.00=4.00 Turbidity = NA Temperature = 9.16 °C

Conductivity = ~~4.49=Stan=4.50=S/C~~ Dissolved Oxygen = 0.0 mg/L = 0.0 mg/L Salinity = _____

Turbidity Meter						

Comments: pH 7.00=6.98 LOT 2906508 OAKTON ZOBELL'S ORP STANDARD 228 mV = 227.5 LOT 1907276

pH 10.00=9.97 LOT 2905557 OAKTON ZERO O2 = LOT 2812515

Meter Type	Manufacturer	Model Number	Mfg. Serial#	Rental Co. Serial #	Date	Time
Turbidity Meter	LaMotte	2020e	SN:ME #1943	NA	10/5/09	0745

Calibrated to Autocal Solution Manufacturer _____ Lot Number _____

pH = _____ Turbidity = _____ Temperature = _____

Conductivity = _____ Dissolved Oxygen = _____ Salinity = _____

Turbidity Meter	0.0=0.0	1.0=1.32	10.0=9.87			

Comments: AMCO 10.0 NTU LOT P891234 AMCO 0.0 NTU PP96176

AMCO 1.0 NTU LOT P994875

Meter Type	Manufacturer	Model Number	Mfg. Serial#	Rental Co. Serial #	Date	Time
Multiparameter	YSI	556 MPS	06A1220AA	001833	10/6/09	0645

Calibrated to Autocal Solution Manufacturer Autocal Lot Number 7269

pH = 4.00=3.95 Turbidity = NA Temperature = 9.25

Conductivity = 4.49=Stan=4.48=S/C Dissolved Oxygen = 0.0 mg/L Salinity = NA

Turbidity Meter						

Comments: pH 7.00=6.96 LOT 2906508 Oakton ZOBELL'S ORP SLN 225 mV = 232.6 LOT 1907276

pH 10.00=9.96 LOT 2905557 OAKTON Zero O2 = 0.0 mg/L LOT 2812515

Meter Type	Manufacturer	Model Number	Mfg. Serial#	Rental Co. Serial #	Date	Time
Turbidimeter	LaMotte	2020e	SN:ME 14948	NA	10/6/09	0700

Calibrated to Autocal Solution Manufacturer _____ Lot Number _____

pH = _____ Turbidity = _____ Temperature = _____

Conductivity = _____ Dissolved Oxygen = _____ Salinity = _____

Turbidity Meter	0.0=0.0	1.0=1.19	10.0=9.84			

Comments: AMCO 10.0 NTU LOT P891234 AMCO NTU:0.0 = PP96176

AMCO 1.0 NTU LOT P994875

Multiparameter Probe Instrument Calibration Form

Meter Type	Manufacturer	Model Number	Mfg. Serial#	Rental Co. Serial #	Date	Time
Multiparameter	HORIBA	U-22XD	T0052002	001876	10/7/09	0730

Calibrated to Autocal Solution Manufacturer Avrical Lot Number 6886

pH = 4.00-4.02 Turbidity = NA Temperature = 12.6

Conductivity = .449 S/m = .448 S/m Dissolved Oxygen = 0.0 mg/L = 0.03 mg/L Salinity = NA

Turbidity Meter						

Comments:

Level Two Solution Lot # 6566-U20 pH 6.86-6.92 40 NTU = 52.7 53.0 mS/cm = 52.9 mS/cm (use LaMotte)

Meter Type	Manufacturer	Model Number	Mfg. Serial#	Rental Co. Serial #	Date	Time
Turbidimeter	LaMotte	2020e	SN. ME 14943	NA	10/7/09	0745

Calibrated to Autocal Solution Manufacturer _____ Lot Number _____

pH = _____ Turbidity = _____ Temperature = _____

Conductivity = _____ Dissolved Oxygen = _____ Salinity = _____

Turbidity Meter	0.0 = 0.0	1.0 = 0.97	10.0 = 10.05			

Comments: AMCO 10.0 NTU Lot P891237 AMCO 60 NTU PO 96176

AMCO 1.0 NTU Lot P994875

Meter Type	Manufacturer	Model Number	Mfg. Serial#	Rental Co. Serial #	Date	Time

Calibrated to Autocal Solution Manufacturer _____ Lot Number _____

pH = _____ Turbidity = _____ Temperature = _____

Conductivity = _____ Dissolved Oxygen = _____ Salinity = _____

Turbidity Meter						

Comments:

Meter Type	Manufacturer	Model Number	Mfg. Serial#	Rental Co. Serial #	Date	Time

Calibrated to Autocal Solution Manufacturer _____ Lot Number _____

pH = _____ Turbidity = _____ Temperature = _____

Conductivity = _____ Dissolved Oxygen = _____ Salinity = _____

Turbidity Meter						

Comments:

Multiparameter Probe Instrument Calibration Form

Meter Type	Manufacturer	Model Number	Mfg. Serial#	Rental Co. Serial #	Date	Time

Calibrated to Autocal Solution Manufacturer ____________ Lot Number ____________

pH = ____________ Turbidity = ____________ Temperature = ____________

Conductivity = ____________ Dissolved Oxygen = ____________ Salinity = ____________

Turbidity Meter						

Comments:

Meter Type	Manufacturer	Model Number	Mfg. Serial#	Rental Co. Serial #	Date	Time

Calibrated to Autocal Solution Manufacturer ____________ Lot Number ____________

pH = ____________ Turbidity = ____________ Temperature = ____________

Conductivity = ____________ Dissolved Oxygen = ____________ Salinity = ____________

Turbidity Meter						

Comments:

Meter Type	Manufacturer	Model Number	Mfg. Serial#	Rental Co. Serial #	Date	Time

Calibrated to Autocal Solution Manufacturer ____________ Lot Number ____________

pH = ____________ Turbidity = ____________ Temperature = ____________

Conductivity = ____________ Dissolved Oxygen = ____________ Salinity = ____________

Turbidity Meter						

Comments:

Meter Type	Manufacturer	Model Number	Mfg. Serial#	Rental Co. Serial #	Date	Time

Calibrated to Autocal Solution Manufacturer ____________ Lot Number ____________

pH = ____________ Turbidity = ____________ Temperature = ____________

Conductivity = ____________ Dissolved Oxygen = ____________ Salinity = ____________

Turbidity Meter						

Comments:

Multiparameter Probe Instrument Calibration Form

Meter Type	Manufacturer	Model Number	Mfg. Serial#	Rental Co. Serial #	Date	Time

Calibrated to Autocal Solution Manufacturer ____________ Lot Number ____________

pH = ________ Turbidity = ________ Temperature = ________

Conductivity = ________ Dissolved Oxygen = ________ Salinity = ________

Turbidity Meter						

Comments:

Meter Type	Manufacturer	Model Number	Mfg. Serial#	Rental Co. Serial #	Date	Time

Calibrated to Autocal Solution Manufacturer ____________ Lot Number ____________

pH = ________ Turbidity = ________ Temperature = ________

Conductivity = ________ Dissolved Oxygen = ________ Salinity = ________

Turbidity Meter						

Comments:

Meter Type	Manufacturer	Model Number	Mfg. Serial#	Rental Co. Serial #	Date	Time

Calibrated to Autocal Solution Manufacturer ____________ Lot Number ____________

pH = ________ Turbidity = ________ Temperature = ________

Conductivity = ________ Dissolved Oxygen = ________ Salinity = ________

Turbidity Meter						

Comments:

Meter Type	Manufacturer	Model Number	Mfg. Serial#	Rental Co. Serial #	Date	Time

Calibrated to Autocal Solution Manufacturer ____________ Lot Number ____________

pH = ________ Turbidity = ________ Temperature = ________

Conductivity = ________ Dissolved Oxygen = ________ Salinity = ________

Turbidity Meter						

Comments:

Multiparameter Probe Instrument Calibration Form

Meter Type	Manufacturer	Model Number	Mfg. Serial#	Rental Co. Serial #	Date	Time

Calibrated to Autocal Solution Manufacturer ____________ Lot Number ____________

pH = ____________ Turbidity = ____________ Temperature = ____________

Conductivity = ____________ Dissolved Oxygen = ____________ Salinity = ____________

Turbidity Meter						

Comments:

Meter Type	Manufacturer	Model Number	Mfg. Serial#	Rental Co. Serial #	Date	Time

Calibrated to Autocal Solution Manufacturer ____________ Lot Number ____________

pH = ____________ Turbidity = ____________ Temperature = ____________

Conductivity = ____________ Dissolved Oxygen = ____________ Salinity = ____________

Turbidity Meter						

Comments:

Meter Type	Manufacturer	Model Number	Mfg. Serial#	Rental Co. Serial #	Date	Time

Calibrated to Autocal Solution Manufacturer ____________ Lot Number ____________

pH = ____________ Turbidity = ____________ Temperature = ____________

Conductivity = ____________ Dissolved Oxygen = ____________ Salinity = ____________

Turbidity Meter						

Comments:

Meter Type	Manufacturer	Model Number	Mfg. Serial#	Rental Co. Serial #	Date	Time

Calibrated to Autocal Solution Manufacturer ____________ Lot Number ____________

pH = ____________ Turbidity = ____________ Temperature = ____________

Conductivity = ____________ Dissolved Oxygen = ____________ Salinity = ____________

Turbidity Meter						

Comments:

2-31 Data Gap Waste Handling Dash Card

- **Boeing Project Manager:** Will Ernst
- **Boeing Field Engineer:** Joe Flaherty, Jennifer Parsons, or Fred Wallace
- **Boeing Waste Specialist:** Dan Machut
- **Consultant:** Golder and EPI
- **Contractor:** Cascade Drilling

Contractor Responsibilities

- Forecast type and volume of waste to be generated prior to mobilization, communicate needs to Boeing Field Engineer to ensure proper containers are ordered.
- Call Plant 2 Materials Handling to transport containers to project area.
- Fill containers with generated waste. Once containers are full and properly labeled, place containers on pallet and band containers to prepare them for transportation to designated accumulation area.

Consultant Responsibilities

- Apply appropriate soil container identification number and labels. Initiate "Container Log".
- Collect composite sample of individual container when full or sampling effort is complete. Assign appropriate sample ID per QAPP. Complete COC including program identifier.
- Secure lid and oversee contractors place containers on pallet and band containers for transportation to building 2-120 accumulation area, or alternate location assigned by Boeing Field Engineer.
- Contact Plant 2 Materials Handling for pickup and transportation to designated accumulation area.
- Confirm pickup and transportation to designated accumulation area and verify transport within three days.
- Forward copy of completed container log to Waste Tracking Group by email.

Boeing Field Engineer Responsibilities

- Help identify types of containers needed and determine accumulation area.
- Order necessary containers from Drum Yard.
- Supply container labels and drum identification numbers.

Boeing Waste Specialist Responsibilities

- Create waste characterization profile for waste containers based on composite characterization samples.

Contact List
Will Ernst: 206-655-7724
Joe Flaherty: 206-769-5987
Jennifer Parsons: 206-715-7981
Fred Wallace: 206-930-0461
Dan Machut: 206-655-8344
Plant 2 Materials Handling: 206-655-3266

2-31 Area Data Gap Groundwater Sampling Field Data

Boeing Plant 2, Seattle/Tukwila, Washington

Station	PL2-502A	Date	10/1/09
Sample: ID	2-31-PL2-502A-W-0 MS/MSD	Field Team: (Initials)	JB, KA
Field Conditions	Cloudy ~55°F		

Purge Information

Well Diameter (in.)	2"
Well Depth (ft.)	17.78
Initial Depth to Water (ft.)	11.99
Depth of Water Column	5.79
3 Casing Volumes	2.8
1 Casing Volume	0.9

Purge Method (circle) : Submersible pump / Bladder Pump / (Peristaltic Pump) / Other: : _____

Start Time	0815
End Time	1215
Total Gallons Purged	4.0

Time	Gallons	DTW (wells only)	pH	Cond.	NTU	DO	Temp.	ORP	Appearance
0822	0.3	12.18	6.45	68.3	15.8	0.0	17.1	-87	clear
0825	0.5	12.19	6.39	65.2	8.7	0.99	17.1	-88	clear
0828	0.8	12.15	6.35	60.0	8.9	0.62	17.1	-87	clear
0831	1.1	12.15	6.32	59.4	9.2	0.34	17.1	-85	clear
0834	1.3	12.18	6.31	59.1	9.2	0.28	17.1	-86	clear
0837	1.5	12.20	6.31	58.9	14.2	0.26	17.1	-87	clear
0840	1.7	12.20	6.31	59.0	4.35	0.26	17.1	-87	clear

Sample Information

Sample Method(s) (circle): (Peristaltic pump) / Submersible pump / Bladder Pump / Other

Analysis	Time	Bottle Type	Preservative/Filtration	Comments
VOCs	0842	3-40mL VOAs	HCl	MS/MSD
Dissolved Metals	0842	1-1L HDPE / 1-500mL HDPE	HNO_3 + FILTERED	MS/MSD + Mercury
Total Metals	0842	1-1L HDPE / 1-500mL HDPE	HNO_3	MS/MSD + Mercury
~~Chromium VI~~				
Total and WAD CN	0842	1-500mL HDPE	NA	MS/MSD
TPH-Dx, TPH-Gx	0842	2-500mL AG / 2-40mL VOAs	NA / HCl	MS/MSD
SVOCs	0842	4-500mL AG	NA	MS/MSD 2 SIM PAH's 2 SVOCs
PCBs	0842	2-1L AG	NA	MS/MSD
Redox TOC	0842	1-250mL AG	H_2SO_4	MS/MSD
Ammonia	0842	1-500mL HDPE	H_2SO_4	MS/MSD

End Time 1215

Comments / Exceptions:

Presence of floating product? YES / (NO) Presence of sinking product? YES / (NO)

Nitrite/Nitrate/Sulfide	0842	1-500mL HDPE	NA	MS/MSD	4.0 mg/L = Ferrous Iron
Sulfide	0842	1-500mL HDPE	2mL AC (1M NaOH)	MS/MSD	4.5 mg/L = Ferrous Iron MS
TDS	0842	1-1L HDPE	NA	MS/MSD	50 mg/L = Ferrous Iron MSD
Density	0842	1-1L HDPE	NA	MS/MSD	

Notes: Where multiple visits are required to complete sampling, parameters are to be checked prior to sampling for each visit. Enter data under field comments.

2-31 Area Data Gap Groundwater Sampling Field Data

Boeing Plant 2, Seattle/Tukwila, Washington

Station	PL2-503A	Date	10/1/09
Sample: ID	2-31-PL2-503A-W-00	Field Team: (Initials)	KA, JB
Field Conditions	Partly Sunny		

Purge Information

Well Diameter (in.)		4"
Well Depth (ft.)		17.5
Initial Depth to Water (ft.)		8.28
Depth of Water Column		9.22
3 Casing Volumes	KA	~~4.5~~ 17.97
1 Casing Volume	KA	~~1.5~~ 5.99

Purge Method (circle) : Submersible pump / Bladder Pump / (Peristaltic Pump) / Other: : _____

Start Time	1229
End Time	1340
Total Gallons Purged	2.5

Time	Gallons	DTW (wells only)	pH	Cond.	NTU	DO	Temp.	ORP	Appearance
1234	0.5	8.32	6.64	50.6	21.5	0.23	24.5	-85	clear
1237	0.7	8.30	6.62	50.7	25.2	0.19	24.5	-90	clear
1240	1.0	8.30	6.64	50.9	13.38	0.16	24.6	-93	clear
1243	1.25	8.31	6.62	50.8	3.38	0.22	24.6	-95	clear
1246	1.5	8.31	6.62	51.1	2.76	0.15	24.6	-97	clear
1249	1.75	8.32	6.62	51.1	2.36	0.17	24.5	-98	clear
1252	2.0	8.32	6.63	51.3	2.19	0.18	24.5	-99	clear

Sample Information

Sample Method(s) (circle): (Peristaltic pump) / Submersible pump / Bladder Pump / Other

Analysis	Time	Bottle Type	Preservative/Filtration	Comments
VOCs	1254	3-40mL VOA's	HCl	MS/MSD
Dissolved Metals	1254	1-1L HDPE/1-500mL HDPE	HNO_3 - Field filtered	MS/MSD + Mercury
Total Metals	1254	1-1L HDPE/1-500mL HDPE	HNO_3	+ Mercury
Chromium VI				
Total and WAD CN	X			
TPH-Dx, TPH-Gx	1254	2-40mL VOA/2-500mL AG	HCl / NA	
SVOCs	1254	4-500mL AG	NA	
PCBs				
Redox Ammonia	1254	1-500mL HDPE	H_2SO_4	
~~Dissolved Metals~~ TOC	1254	1-250mL AG	H_2SO_4	

End Time 1340

Comments / Exceptions:

Presence of floating product? YES / (NO) Presence of sinking product? YES / (NO)

Nitrate, Nitrite, Sulfate	1254	1-500mL HDPE	NA	3.2 = Ferrous Iron
Sulfide	1254	1-500mL HDPE	Zn Acc.	3.4
TDS	1254	1-1L HDPE	NA	3.0
Density	1254	1-1L HDPE	NA	

Notes: Where multiple visits are required to complete sampling, parameters are to be checked prior to sampling for each visit. Enter data under field comments.

2-31 Area Data Gap Groundwater Sampling Field Data

Boeing Plant 2, Seattle/Tukwila, Washington

Station	PL2-501A	Date	10/2/09
Sample: ID	2-31-PL2-501A-W-0	Field Team: (Initials)	KA
Field Conditions	Partly Sunny		

Purge Information

Well Diameter (in.)	2"
Well Depth (ft.)	17.15
Initial Depth to Water (ft.)	11.15 @ 0745
Depth of Water Column	6
3 Casing Volumes	2.88
1 Casing Volume	0.96

Purge Method (circle): Submersible pump / Bladder Pump / (Peristaltic Pump) / Other: :

Start Time	0820
End Time	0940
Total Gallons Purged	4.0

Time	Gallons	DTW (wells only)	pH	Cond.	NTU	DO	Temp.	ORP	Appearance
0827	1.4	11.22	7.88	0.410	4.32	-0.02	18.86	5.0	clear Yellow
0856	2.5	11.35	6.61	0.408	1.90	0.97	18.90	12.3	clear Yellow
0859	2.7	11.35	6.71	0.400	1.63	0.28	18.91	1.0	clear Yellow
0902	2.9	11.38	6.76	0.396	1.84	0.26	18.90	-4.8	clear Yellow
0905	3.2	11.39	6.80	0.392	1.84	0.20	18.85	-9.5	clear Yellow
0908	3.5	11.39	6.83	0.392	1.73	0.19	18.85	-11.5	clear Yellow

Sample Information

Sample Method(s) (circle): (Peristaltic pump) / Submersible pump / Bladder Pump / Other

Analysis	Time	Bottle Type	Preservative/Filtration	Comments
VOCs	0910	3-40mL VOAs	HCl	~~MS/MSD~~ KA
Dissolved Metals	0910	1L-HDPE, 1-500mL HDPE	HNO_3 Field filtered	~~MS/MSD~~ KA LL Hg
Total Metals	0910	1L HDPE, 1-500mL HDPE	HNO_3	LL Hg
Chromium VI				
Total and WAD CN	0910	1-500mL HDPE	—	
TPH-Dx, TPH-Gx				
SVOCs				
PCBs				
Redox TOC	0910	1-250mL AG	H_2SO_4	
Ammonia	0910	1-500mL HDPE	H_2SO_4	

End Time: 0940

Comments / Exceptions:

Presence of floating product? YES / (NO) Presence of sinking product? YES / (NO)

Nitrate, Nitrite, Sulfate	0910	1-500mL HDPE	NA	4.5 : Ferrous Iron
Sulfide	0910	1-500mL HDPE	ZnAOC	
TDS	0910	1-1L HDPE	NA	
Density	0910	1-1L HDPE	NA	

Notes: Where multiple visits are required to complete sampling, parameters are to be checked prior to sampling for each visit. Enter data under field comments.

2-31 Area Data Gap Groundwater Sampling Field Data

Boeing Plant 2, Seattle/Tukwila, Washington

Station	RL2-501B	Date	10/2/09
Sample: ID	231-RL2-501B-W-0	Field Team: (Initials)	KA
Field Conditions	Inside Rain outside		

Purge Information

Well Diameter (in.)	2"	
Well Depth (ft.)	48.94	
Initial Depth to Water (ft.)	10.95 @ 0803	
Depth of Water Column	~~41.30 KA~~	38.00
3 Casing Volumes	18.3	18.3
1 Casing Volume	6.1	6.1

Purge Method (circle): Submersible pump / Bladder Pump / Peristaltic Pump / Other: : _____

Start Time	1000
End Time	1203
Total Gallons Purged	3.8

Time	Gallons	DTW (wells only)	pH	Cond.	NTU	DO	Temp.	ORP	Appearance
10:06	0.5	11.30	7.11	0.877	1.92	1.07	18.02	-12.8	clear
1009	0.7	11.29	7.20	0.786	1.92	0.54	17.89	-29.4	clear
1012	0.9	11.30	7.22	0.753	2.14	0.70	17.85	-33.2	clear
1015	1.2	11.31	7.20	0.725	2.48	0.59	17.83	-29.0	clear
1018	1.4	11.32	7.17	0.722	2.27	0.35	17.81	-24.8	clear
1021	1.6	11.32	7.17	0.725	2.29	0.32	17.82	-25.4	clear
1024	1.9	11.34	7.19	0.728	1.99	0.18	17.81	-30.8	clear
1027	2.2	11.34	7.20	0.734	2.29	0.15	17.82	-31.1	clear
1030	2.5	11.34	7.18	0.730	2.44	0.15	17.84	-28.6	clear

Sample Information

Sample Method(s) (circle): Peristaltic pump / Submersible pump / Bladder Pump / Other

Analysis	Time	Bottle Type	Preservative/Filtration	Comments
VOCs	1032	3-40mL VOAs	HCl	MS/MSD
Dissolved Metals	1032	1-1L HDPE, 1-500mL HDPE	HNO_3 Field filtered	MS/MSD + LL Hg
Total Metals	1032	1-1L HDPE, 1-500mL HDPE	HNO_3	+ LL Hg
Chromium VI				
Total and WAD CN	1032	1-500mL HDPE	—	MS/MSD
TPH-Dx, TPH-Gx				
SVOCs				
PCBs				
Redox TOC	1032	1-250mL AG	H_2SO_4	
Ammonia	1032	1-500mL HDPE	H_2SO_4	

End Time: 1203

Comments / Exceptions:

Presence of floating product? YES / NO Presence of sinking product? YES / NO

Nitrite, Nitrate, Sulfate	1032	1-500mL HDPE	—	6.8: Ferrous Iron
Sulfide		1-500mL HDPE	ZnOAC	6.9 =
TDS	1032	1-L HDPE	—	6.5 =
Density	1032	1-L HDPE	—	

Notes: Where multiple visits are required to complete sampling, parameters are to be checked prior to sampling for each visit. Enter data under field comments.

2-31 Area Data Gap Groundwater Sampling Field Data

Boeing Plant 2, Seattle/Tukwila, Washington

Station	PL2 - B01C	Date	10/2/07
Sample: ID	2-31-PL2-501C-W-0	Field Team: (Initials)	KA
Field Conditions	Inside Rain outside		

Purge Information

Well Diameter (in.)	2"
Well Depth (ft.)	78.6
Initial Depth to Water (ft.)	12.95 @0805
Depth of Water Column	66.7
3 Casing Volumes	32.
1 Casing Volume	10.7

Purge Method (circle) : Submersible pump / Bladder Pump / (Peristaltic Pump) / Other: :

Start Time	1205
End Time	1338
Total Gallons Purged	2.8

Time	Gallons	DTW (wells only)	pH	Cond.	NTU	DO	Temp.	ORP	Appearance
1218	1.0	12.00	7.31	33.42	9.70	0.36	17.79	-13.8	clear
1221	1.2	12.03	7.30	33.42	9.53	0.57	17.75	-12.5	clear
1224	1.4	12.03	7.30	33.42	9.08	0.51	17.73	-13.4	clear
1227	1.6	12.04	7.25	33.45	8.38	0.32	17.74	-3.3	clear
1230	1.8	12.04	7.29	33.42	7.95	0.19	17.64	-18.8	clear
1233	2.0	12.05	7.35	33.39	7.71	0.18	17.61	-31.2	clear
1236	2.2	12.05	7.37	33.41	7.82	0.15	17.61	-35.5	clear
1239	2.4	12.05	7.38	33.38	7.01	0.13	17.56	-39.1	clear
1242	2.6	12.05	7.38	33.37	6.96	0.13	17.52	-40.1	clear

Sample Information

Sample Method(s) (circle): (Peristaltic pump) / Submersible pump / Bladder Pump / Other

Analysis	Time	Bottle Type	Preservative/Filtration	Comments
VOCs	1245	3-40mL VOA's	Non-pres.	MS/MSD
Dissolved Metals	1245	1-1L HDPE, 1-500mL HDPE	HNO_3 field filter	MS/MSD + LL Hg
Total Metals	1245	1-1L HDPE, 1-500mL HDPE	HNO_3	+ LL Hg
Chromium VI				
Total and WAD CN				
TPH-Dx, TPH-Gx				
SVOCs				
PCBs				
Redox TOC	1245	1-250mL AG	H_2SO_4	
Ammonia	1245	1-500mL HDPE	H_2SO_4	

End Time 1338

Comments / Exceptions:

Presence of floating product? YES / (NO) Presence of sinking product? YES / (NO)

Sulfide	1245	1-500mL HDPE	ZnOAC	9.2 = Ferrous Iron
Nitrate, Nitrite, Sulfate	1245	1-500mL HDPE	-	9.0
Density	1245	1-L HDPE	-	9.2
TDS	1245	1-L HDPE	-	

Notes: Where multiple visits are required to complete sampling, parameters are to be checked prior to sampling for each visit. Enter data under field comments.

2-31 Area Data Gap Groundwater Sampling Field Data

Boeing Plant 2, Seattle/Tukwila, Washington

Station	PLZ-509A	Date	10/5/09
Sample: ID	2-31-PLZ-509A-W-0	Field Team: (Initials)	KA/SR
Field Conditions	INSIDE		

Purge Information

Well Diameter (in.)	2"
Well Depth (ft.)	18'
Initial Depth to Water (ft.)	11.02
Depth of Water Column	6.98
3 Casing Volumes	3.3
1 Casing Volume	1.1

Purge Method (circle) : Submersible pump / Bladder Pump / (Peristaltic Pump) / Other: : _____

Start Time	0750
End Time	0956
Total Gallons Purged	3.0

Time	Gallons	DTW (wells only)	pH	Cond.	NTU	DO	Temp.	ORP	Appearance
0801	0.5	11.04	8.70	0.934	30.5	0.61	19.52	25.0	clear, odor
0804	0.6	11.03	8.92	0.906	23.9	0.43	19.59	6.7	clear, odor, pet
0807	0.7	11.04	8.97	0.895	22.5	0.38	19.57	-1.9	clear, Yellow
0810	0.8	11.04	9.14	0.892	14.6	0.38	19.63	-14.7	clear, Yellow
0813	0.9	11.04	9.20	0.891	15.1	0.34	19.61	-19.5	clear, slight Yellow
0816	1.1	11.05	9.26	0.892	14.4	0.30	19.66	-26.2	clear, slight Yellow
0819	1.2	11.04	9.27	0.890	13.2	0.28	19.68	-26.7	clear, slight Yellow
0822	1.4	11.04	9.36	0.886	9.78	0.42	19.68	-31.7	clear, slight Yellow
0825	1.6	11.04	9.26	0.885	11.1	0.32	19.66	-12.2	clear, slight Yellow
0828	1.8	11.04	9.35	0.884	10.69	0.37	19.65	-24.0	clear, slight Yellow
0831	2.0	11.04	9.27	0.884	9.29	0.34	19.65	-11.4	clear, slight Yellow
0834	2.2	11.04	9.26	0.884	9.29	0.31	19.64	-7.0	clear, slight Yellow
0837	2.5	11.04	9.28	0.884	9.85	0.27	19.66	-11.4	clear, slight Yellow

Sample Information

Sample Method(s) (circle): (Peristaltic pump) / Submersible pump / Bladder Pump / Other

Analysis	Time	Bottle Type	Preservative/Filtration	Comments
VOCs	0839	3-40mL VOAs	HCl	Duplicate
Dissolved Metals	0839	1-1L HDPE, 1-500mL HDPE	HNO_3 + filtered	LL Hg Duplicate
Total Metals	0839	1-1L HDPE, 1-500mL HDPE	HNO_3	LL Hg
Chromium VI				
Total and WAD CN	0839	1-500mL HDPE	—	Duplicate
TPH-Dx, TPH-Gx	0839	2-500mL AG, 2-40mL VOA	NA / HCl	
SVOCs	0839	4-500mL AG	NA	
PCBs				
Redox TOC	0839	1-250mL AG	H_2SO_4	
Ammonia	0839	1-500mL HDPE	H_2SO_4	

End Time 0956

Comments / Exceptions:

Presence of floating product? YES / (NO) Presence of sinking product? YES / (NO)

Nitrate, Nitrite, Sulfate 0839 1-500mL HDPE NA — Ferrous Iron 3.4

Sulfide 0839 1-500mL HDPE ZnOAc 3.8

TDS 0839 1-500mL HDPE NA

Density 0839 1-1L HDPE NA

Duplicate Time 0850

Notes: Where multiple visits are required to complete sampling, parameters are to be checked prior to sampling for each visit. Enter data under field comments.

2-31 Area Data Gap Groundwater Sampling Field Data

Boeing Plant 2, Seattle/Tukwila, Washington

Station	PL-509B	Date	10/5/09
Sample: ID	2-31-PL2-509B-W-0	Field Team: (Initials)	KA, JB
Field Conditions	Inside		

Purge Information

Well Diameter (in.)	2"
Well Depth (ft.)	49.90
Initial Depth to Water (ft.)	11.00
Depth of Water Column	38.90
3 Casing Volumes	18.6
1 Casing Volume	6.2

Purge Method (circle): Submersible pump / Bladder Pump / (Peristaltic Pump) / Other: : _____

Start Time	1000
End Time	1120
Total Gallons Purged	4.0

Time	Gallons	DTW (wells only)	pH	Cond.	NTU	DO	Temp.	ORP	Appearance
1012	1.25	11.05	10.23	1.111	179	0.29	18.19	-38.7	cloudy - Gray
1015	1.5	11.08	10.26	1.023	890	0.36	18.22	-42.1	cloudy - Gray
1025	2.25	11.08	10.02	0.782	125	0.27	18.31	-18.5	clear, colorless
1028	2.6	11.08	10.04	0.756	34.0	0.24	18.27	-17.6	clear, colorless
1031	2.9	11.08	10.05	0.741	17.1	0.20	18.26	-18.0	clear, colorless
1034	3.2	11.08	10.13	0.750	10.31	0.19	18.24	-31.0	clear, colorless
1038	3.5	11.08	10.15	0.754	9.31	0.18	18.25	-30.4	clear, colorless
1041	3.7	11.08	10.13	0.763	9.16	0.18	18.25	-28.0	clear, colorless

Empty sediment from flow cell.

Sample Information

Sample Method(s) (circle): (Peristaltic pump) / Submersible pump / Bladder Pump / Other

Analysis	Time	Bottle Type	Preservative/Filtration	Comments
VOCs	1043	3-40mL VOAs	HCl	
Dissolved Metals	1043	1-1LHDPE, 1-500mL HDPE	HNO_3/filtered	
Total Metals	1043	1-1LHDPE-1-500mLHDPE	HNO_3	
Chromium VI				
Total and WAD CN	1043	1-500mL HDPE	NA	
TPH-Dx, TPH-Gx				
SVOCs				
PCBs				
Redox TOC	1043	1-250mL AG	H_2SO_4	
Ammonia	1043	1-500mL HDPE	H_2SO_4	

End Time 1120

Comments / Exceptions:

Presence of floating product? YES / (NO) Presence of sinking product? YES / (NO)

Nitrate, Nitrite, Sulfate	1043	1-500mL HDPE		Ferrous = 4.5 mg/L
Sulfide	1043	1-500mL HDPE	ZnOAC	
TDS	1043	1-1LHDPE	—	
Density	1043	1-1LHDPE	—	

Notes: Where multiple visits are required to complete sampling, parameters are to be checked prior to sampling for each visit. Enter data under field comments.

2-31 Area Data Gap Groundwater Sampling Field Data

Boeing Plant 2, Seattle/Tukwila, Washington

Station	PL2-504A	Date	10/5/04
Sample: ID	2-31-PL2-504A-U-0	Field Team: (Initials)	SB/KA
Field Conditions	Sunny & Clear		

Purge Information

Well Diameter (in.)	4"
Well Depth (ft.)	15'
Initial Depth to Water (ft.)	7.90'
Depth of Water Column	7.1
3 Casing Volumes	13.8
1 Casing Volume	4.6

Purge Method (circle): Submersible pump / Bladder Pump / (Peristaltic Pump) / Other: :

Start Time	1130
End Time	1250
Total Gallons Purged	12 gallons

Time	Gallons	DTW (wells only)	pH	Cond.	NTU	DO	Temp.	ORP	Appearance
1134	.3	8.13	9.84	0.273 mS	9.69	1.15 mg	19.04	101.3	clear
1137	.4	8.19	9.86	0.270 mS	7.82	1.16 mg	19.08	98.1	clear
1140	.5	8.24	9.86	0.268 mS	6.71	1.21 mg	19.07	97.1	clear
1143	.6	8.27	9.84	0.261 mS	7.59	0.37 mg	19.08	94.6	clear
1146	.7	8.26	9.88	0.261 mS	5.84	6.42 mg	19.17	92.6	clear
1149	.8	8.27	9.90	0.262 mS	5.98	6.34 mg	19.10	91.5	clear

Sample Information

Sample Method(s) (circle): (Peristaltic pump) / Submersible pump / Bladder Pump / Other

Analysis	Time	Bottle Type	Preservative/Filtration	Comments
VOCs	1150	3-40-mL VOAs	HCl	
Dissolved Metals	1150	1-1L HDPE, 1-500-mL HDPE	HNO_3 & Field Filtered	LL Hg
Total Metals	1150	1-1L HDPE, 1-500-mL HDPE	HNO_3	LL Hg
Chromium VI				
Total and WAD CN				
TPH-Dx, TPH-Gx	1150	2-500-mL AG, 2-40-mL VOA	NA / HCl	
SVOCs	1150	4-500-mL AG	NA	2 SVOCs + 2 SIM PAHs
PCBs				
Redox TOC	1150	1-250-mL AG	H_2SO_4	
Ammonia	1150	1-500-mL HDPE	H_2SO_4	

End Time 1250

Comments / Exceptions:

Presence of floating product? YES / (NO) Presence of sinking product? YES / (NO)

Nitrate/Nitrite/Sulfate	1150	1-500-mL HDPE	NA	Ferrous Iron = 1.0 mg/L
Sulfide	1150	1-500-mL HDPE	2 mL ZnOAc (ddH2O)	
TDS	1150	1-L HDPE	NA	
Density	1150	1-L HDPE	NA	

Notes: Where multiple visits are required to complete sampling, parameters are to be checked prior to sampling for each visit. Enter data under field comments.

2-31 Area Data Gap Groundwater Sampling Field Data

Boeing Plant 2, Seattle/Tukwila, Washington

Station	PLZ-505A	Date	10/5/09
Sample: ID	2-31-PLZ-505A-W-09-1	Field Team: (Initials)	JB/KA
Field Conditions	Sunny & clear		

Purge Information

Well Diameter (in.)	4"
Well Depth (ft.)	24.5'
Initial Depth to Water (ft.)	11.78
Depth of Water Column	12.72
3 Casing Volumes	24.9
1 Casing Volume	8.3

Purge Method (circle): Submersible pump / Bladder Pump / (Peristaltic Pump) / Other: : _____

Start Time	1255
End Time	1435
Total Gallons Purged	1.8

Time	Gallons	DTW (wells only)	pH	Cond.	NTU	DO	Temp.	ORP	Appearance
1306	.4	11.70	10.56	0.662 mS/cm	6.95	0.35 mg/L	22.85	-32.8	clear
1309	.5	11.70	10.45	0.660 mS/cm	5.79	0.36 mg/L	22.75	-30.7	clear
1312	.7	11.70	10.40	0.658 mS/cm	5.57	0.30 mg/L	22.61	-32.1	clear
1315	.9	11.70	10.37	0.656 mS/cm	5.63	0.31 mg/L	22.55	-31.3	clear
1318	1.1	11.70	10.37	0.655 mS/cm	7.16	0.30 mg/L	22.54	-35.5	clear
1321	1.3	11.70	10.38	0.655 mS/cm	7.91	0.32 mg/L	22.59	-34.7	clear

Sample Information

Sample Method(s) (circle): (Peristaltic pump) / Submersible pump / Bladder Pump / Other

Analysis	Time	Bottle Type	Preservative/Filtration	Comments
VOCs	1330	3-40mL VOAs	HCl	Duplicate
Dissolved Metals	1330	1-1L HDPE, 1-500mL HDPE	HNO_3 + FIELD FILTERED	Duplicate
Total Metals	1330	1-1L HDPE, 1-500mL HDPE	HNO_3	
Chromium VI				
Total and WAD CN				
TPH-Dx, TPH-Gx	1330	2-500mL AG/2-40mL VOAs	NA / HCl	
SVOCs	1330	4-500mL AG	NA	2 SVOCs + 2 SIM PAHs
PCBs				
Redox TOC	1330	1-250mL AG	H_2SO_4	
Ammonia	1330	1-500mL HDPE	H_2SO_4	

End Time: 1435

Comments / Exceptions:

Presence of floating product?	YES / (NO)	Presence of sinking product?	YES / (NO)	
Nitrate/Nitrite/Sulfide	1330	1-500mL HDPE	NA	Ferrous Iron = 2.2
Sulfide	1330	1-500mL HDPE	2mOAC (AM M.OH)	
TDS	1330	1-1L HDPE	NA	
Density	1330	1-1L HDPE	NA	

Notes: Where multiple visits are required to complete sampling, parameters are to be checked prior to sampling for each visit. Enter data under field comments.

2-31 Area Data Gap Groundwater Sampling Field Data

Boeing Plant 2, Seattle/Tukwila, Washington

Station	PL2-233A	Date	10/6/09
Sample: ID	2-31-PL2-233A-W-0,1	Field Team: (Initials)	JB/KA
Field Conditions	Clear ~4		

Purge Information

Well Diameter (in.)	4"	
Well Depth (ft.)	25.0	
Initial Depth to Water (ft.)	9.90	
Depth of Water Column	~~15.1~~ 15.1	KA
3 Casing Volumes	29.4	
1 Casing Volume	~~4.9~~ 9.8	KA

Purge Method (circle) : Submersible pump / Bladder Pump / ~~Peristaltic Pump~~ / Other: :

Start Time	~~0710~~ JB 1000
End Time	1200
Total Gallons Purged	4 L gallons

Time	Gallons	DTW (wells only)	pH	Cond.	NTU	DO	Temp.	ORP	Appearance
~~0727~~	1.25	9.90	8.39	0.940	7.50	0.52	16.04	69.7	clear
~~0730~~	~~1.5~~	9.92	8.63	0.927	7.35	0.58	16.07	47.7	clear
0733	1.75	9.92	~~8.72~~	0.927	~~7.94~~	~~0.35~~	16.05	40.1	clear
0736	2.0	9.92	8.75	0.922	~~7.27~~	0.33	16.03	37.0	clear
~~0739~~	~~2.25~~	9.91	8.99	0.916	7.27	0.31	~~16.05~~	35.4	clear
			JB Meter Replaced						
1012	3.0	10.55	6.75	0.101 S/m	7.6	2.02 mg/L	17.3	-113	clear
1015	3.2	10.57	6.73	0.093 S/m	6.0	1.43 mg/L	17.3	-118	clear
1018	3.4	10.58	6.68	88.8 mS/m	8.0	0.96 mg/L	17.3	-120	clear
1021	3.6	10.59	6.67	87.4 mS/m	9.2	0.92 mg/L	17.3	-124	clear
1024	3.8	10.60	6.67	86.6 mS/m	8.6	0.83 mg/L	17.3	-125	clear
1027	4.0	10.62	6.68	86.1 mS/m	6.7	0.50 mg/L	17.3	-128	clear
1030	4.2	10.64	6.68	86.2 mS/m	6.1	0.78 mg/L	17.3	-130	clear

Sample Information

Sample Method(s) (circle): Peristaltic pump / Submersible pump / Bladder Pump / Other

Analysis	Time	Bottle Type	Preservative/Filtration	Comments
VOCs	1035	3-40-L VOA	HCl	Duplicate @ 1100
Dissolved Metals	1035	1-1L HDPE/1-500mL HDPE	HNO_3/FIELD FILTERED	Duplicate + LL Hg @1100
Total Metals	1035	1-1L HDPE/1-500mL HDPE	HNO_3	Duplicate @1100
Chromium VI				
Total and WAD CN	1035	1-500mL HDPE	NA	Duplicate @1100
TPH-Dx, TPH-Gx	1035	2-500mL AG/2-40mL VOA	NA/HCl	Duplicate @1100
SVOCs	1035	4-500mL AG	NA	Duplicate @1100
PCBs				
Redox TOC	1035	1-250mL AG	H_2SO_4	Duplicate @1100
Ammonia	1035	1-500mL HDPE	H_2SO_4	Duplicate @1100
End Time	1200			

Comments / Exceptions:

Presence of floating product? YES / (NO) Presence of sinking product? YES / (NO)

Nitrite/Nitrate/Sulfate	1035	1-500mL HDPE	NA	Duplicate @1100 Ferrous Iron - 4.6
Sulfide	1035	1-500mL HDPE	2 mL OAC (Add MeOH)	Duplicate @1100 Ferrous Iron-Dup 4.6
TDS	1035	1-1L HDPE	NA	Duplicate @1100
Density	1035	1-1L HDPE	NA	Duplicate @1100

Notes: Where multiple visits are required to complete sampling, parameters are to be checked prior to sampling for each visit. Enter data under field comments.

2-31 Area Data Gap Groundwater Sampling Field Data

Boeing Plant 2, Seattle/Tukwila, Washington

Station	PLZ-507B	Date	10/6/09
Sample: ID	2-31-PLZ-507B-U-G,1	Field Team: (Initials)	JB / KA
Field Conditions	Sunny + Clear		

Purge Information

Well Diameter (in.)	2"
Well Depth (ft.)	45'
Initial Depth to Water (ft.)	10.57
Depth of Water Column	34.4
3 Casing Volumes	16.5
1 Casing Volume	5.5

Purge Method (circle) : Submersible pump / Bladder Pump / (Peristaltic Pump) / Other: : _____

Start Time	1210
End Time	1415
Total Gallons Purged	4.2 gallons

Time	Gallons	DTW (wells only)	pH	Cond.	NTU	DO	Temp.	ORP	Appearance
1221	.8	10.58	6.68	0.114 S/cm	665	2.00 mg/L	15.2	-106	cloudy
1229	1.6	10.59	6.57	723 mS/cm	155	1.22 mg/L	15.2	-110	cloudy
1234	2.2	10.59	6.66	698 mS/cm	122	1.06 mg/L	15.2	-117	cloudy
1237	2.4	10.60	6.71	66.1 mS/cm	89.9	0.98 mg/L	15.1	-121	cloudy
1240	2.6	10.60	6.73	62.8 mS/cm	83.6	0.91 mg/L	15.2	-123	cloudy
1248	3.0	10.60	6.75	58.8 mS/cm	59.4	0.80 mg/L	15.2	-126	cloudy
1251	3.2	10.60	6.76	58.5 mS/cm	50.9	0.78 mg/L	15.2	-127	cloudy
1254	3.4	10.60	6.76	58.0 mS/cm	50.3	0.76 mg/L	15.2	-127	cloudy
1257	3.6	10.60	6.77	57.9 mS/cm	49.3	0.74 mg/L	15.2	-128	cloudy

Sample Information

Sample Method(s) (circle) (Peristaltic pump) / Submersible pump / Bladder Pump / Other

Analysis	Time	Bottle Type	Preservative/Filtration	Comments
VOCs	1300	3-40mL VOAs	HCl	Duplicate @1315
Dissolved Metals	1300	1-1L HDPE/1-500mL HDPE	HNO3/FIELD FILTERED	Duplicate @1315 + LL Hg
Total Metals	1300	1-1L HDPE/1-500mL HDPE	HNO3	Duplicate @1315 + LL Hg
Chromium VI				
Total and WAD CN	1300	1-500mL HDPE	NA	Duplicate @1315
TPH-Dx, TPH-Gx				
SVOCs	1300	4-500mL AG	NA	Duplicate @1315
PCBs	1300	2-1L AG	NA	Duplicate @1315
Redox TOC	1300	1-250mL AG	H_2SO_4	Duplicate @1315
Ammonia	1300	1-500mL HDPE	H_2SO_4	

End Time	1415

Comments / Exceptions:

Presence of floating product? YES / (NO) Presence of sinking product? YES / (NO)

Nitrite/Nitrate/Sulfate	1300	1-500mL HDPE	NA	Duplicate @1315 Ferrous Iron = 3.8 mg/L
Sulfide	1300	1-500mL HDPE	Zn OAC (Add NaOH)	Duplicate @1315 Ferrous Iron = 3.0 Duplicate
TDS	1300	1-1L HDPE	NA	Duplicate @1315
Density	1300	1-1L HDPE	NA	Duplicate @1315

Notes: Where multiple visits are required to complete sampling, parameters are to be checked prior to sampling for each visit. Enter data under field comments.

2-31 Area Data Gap Groundwater Sampling Field Data

Boeing Plant 2, Seattle/Tukwila, Washington

Station	PL2-507A	Date	10/6/09
Sample: ID	2-31-PL2-507A-W-0.1	Field Team: (Initials)	JH/KA
Field Conditions	Sunny Clear		

Purge Information

Well Diameter (in.)	2"
Well Depth (ft.)	18'
Initial Depth to Water (ft.)	10.15'
Depth of Water Column	7.85
3 Casing Volumes	3.9
1 Casing Volume	1.3

Purge Method (circle) : Submersible pump / Bladder Pump / (Peristaltic Pump) / Other: : _____

Start Time	1420
End Time	1555
Total Gallons Purged	1.8

Time	Gallons	DTW (wells only)	pH	Cond.	NTU	DO	Temp.	ORP	Appearance
1428	1.0	10.15'	6.35	21.3 mS/cm	25.7	5.29 mg/L	19.2	42	clear
1431	1.2	10.19'	6.00	21.1 mS/cm	14.6	7.90 mg/L	19.3	63	clear
1434	~~1.3~~	10.21'	5.81	20.5 mS/cm	6.8	7.31 mg/L	19.5	67	clear
1437	1.4	10.41	5.80	20.4	6.8	6.62	19.4	67	clear
1440	1.5	10.38	5.81	20.5	7.9	6.43	19.4	66	clear
1443	1.6	10.32	5.86	20.7	7.2	6.11	19.3	61	clear
1446	1.7	10.31	5.88	20.7	7.2	5.96	19.3	59	clear
1449	1.8	10.30	5.85	20.9	9.1	5.88	19.3	58	clear

Sample Information

Sample Method(s) (circle): (Peristaltic pump) / Submersible pump / Bladder Pump / Other

Analysis	Time	Bottle Type	Preservative/Filtration	Comments
VOCs	1451	3-40 mL VOAs	HCl	Duplicate @ 1500
Dissolved Metals	1451	1-1L HDPE/1-500mL HDPE	HNO_3/FILTERED IN FIELD	Duplicate @ 1500
Total Metals	1451	1-1L HDPE/1-500mL HDPE	HNO_3	
Chromium VI				
Total and WAD CN	1451	1-500mL HDPE	NA	Duplicate @ 1500
TPH-Dx, TPH-Gx				
SVOCs	1451	4-500mL AG	NA	
PCBs	1451	2-1L AG	NA	Duplicate @ 1500
Redox TOC	1451	1-250mL AG	H_2SO_4	
Ammonia	1451	1-500mL HDPE	H_2SO_4	
End Time	1555			

Comments / Exceptions:

Presence of floating product? YES / (NO) Presence of sinking product? YES / (NO)

N. trate/N. trite/Sulfide	1451	1-500mL HDPE	NA	Ferrous Iron = 1.8 mg/L
Sulfide	1451	1-500mL HDPE	2mAOC (AA/NaOH)	
TDS	1451	1-1L HDPE	NA	
Density	1451	1-1L HDPE	NA	

Notes: Where multiple visits are required to complete sampling, parameters are to be checked prior to sampling for each visit. Enter data under field comments.

2-31 Area Data Gap Groundwater Sampling Field Data

Boeing Plant 2, Seattle/Tukwila, Washington

Station	PL2-507C	Date	10/7/09
Sample: ID	2-31-PL2-507C-N-0	Field Team: (Initials)	JB/KA
Field Conditions	Cloudy & Cool		

Purge Information

Well Diameter (in.)	2"
Well Depth (ft.)	76'
Initial Depth to Water (ft.)	10.82
Depth of Water Column	65.18
3 Casing Volumes	31.2
1 Casing Volume	10.4

Purge Method (circle) : Submersible pump / Bladder Pump / (Peristaltic Pump) / Other: :

Start Time	0755
End Time	0915
Total Gallons Purged	2.2 gallons

Time	Gallons	DTW (wells only)	pH	Cond.	NTU	DO	Temp.	ORP	Appearance
0818	1.0	10.80	7.11	1.52 mS/cm	9.69	1.18 mg/L	15.1	-161	clear
0821	1.2	~~10.83~~ 10.86	7.13	1.56 mS/cm	7.63	1.09 mg/L	15.0	-166	clear
0824	1.4	~~10.90~~ 10.90	7.14	1.54 mS/cm	8.44	1.01 mg/L	15.1	-170	clear
0827	1.6	10.97	7.15	1.53 mS/cm	6.19	0.95 mg/L	15.1	-172	clear
0830	1.8	10.97	7.15	1.51 mS/cm	5.74	0.92 mg/L	15.1	-174	clear

Sample Information

Sample Method(s) (circle): (Peristaltic pump) / Submersible pump / Bladder Pump / Other

Analysis	Time	Bottle Type	Preservative/Filtration	Comments
VOCs	0840	3-40mL VOAs	HCl PP NOT PRESERVED	
Dissolved Metals	0840	1-1L HDPE/1-500mL HDPE	HNO_3 / FIELD FILTERED	
Total Metals	0840	1-1L HDPE/1-500mL HDPE	HNO_3	
Chromium VI				
Total and WAD CN	0840	1-500mL HDPE	NA	
TPH-Dx, TPH-Gx				
SVOCs	0840	4-500mL AG	NA	
PCBs	0840	1-1L AG	NA	
Redox TOC	0840	1-250mL AG	H_2SO_4	
Ammonia	0840	1-500mL HDPE	H_2SO_4	
End Time	0915			

Comments / Exceptions:

Presence of floating product? YES / (NO) Presence of sinking product? YES / (NO)

Nitrate/Nitrite/Sulfate	0840	1-500mL HDPE	NA	
Sulfate	0840	1-500mL HDPE	ZnAOC (Add MeOH)	Ferrous Iron = 3.8
TDS	0840	1-L HDPE	NA	
Density	0840	1-L HDPE	NA	

Notes: Where multiple visits are required to complete sampling, parameters are to be checked prior to sampling for each visit. Enter data under field comments.

2-31 Area Data Gap Groundwater Sampling Field Data

Boeing Plant 2, Seattle/Tukwila, Washington

Station		Date	
Sample: ID		Field Team: (Initials)	
Field Conditions			

Purge Information

Well Diameter (in.)	
Well Depth (ft.)	
Initial Depth to Water (ft.)	
Depth of Water Column	
3 Casing Volumes	
1 Casing Volume	

Purge Method (circle) : Submersible pump
Bladder Pump
Peristaltic Pump
Other: : _____

Start Time	
End Time	
Total Gallons Purged	

Time	Gallons	DTW (wells only)	pH	Cond.	NTU	DO	Temp.	ORP	Appearance

Sample Information

Sample Method(s) (circle): Peristaltic pump / Submersible pump / Bladder Pump / Other

Analysis	Time	Bottle Type	Preservative/Filtration	Comments
VOCs				
Dissolved Metals				
Total Metals				
Chromium VI				
Total and WAD CN				
TPH-Dx, TPH-Gx				
SVOCs				
PCBs				
Redox				

End Time

Comments / Exceptions:

Presence of floating product? YES / NO Presence of sinking product? YES / NO

Notes: Where multiple visits are required to complete sampling, parameters are to be checked prior to sampling for each visit. Enter data under field comments.

CN Not Preserved

Chain of Custody Record & Laboratory Analysis Request

ARI Assigned Number:	Turn-around Requested: standard
ARI Client Company: The Boeing Company	Phone: -
Client Contact: Will Ernst	
Client Project Name: Plant 2 - 2-31 Data Gaps Investigation 013-1646-009-200.05	
Client Project #: P2DG-2-31	Samplers: J. Bernthal, K. Addis

Date: 10/7/2009
Page: 1 of 2
No. of Coolers:
Cooler Temps:

Analytical Resources, Incorporated
Analytical Chemists and Consultants
4611 South 134th Place, Suite 100
Tukwila, WA 98168
206-695-6200 206-695-6201 (fax)

	Sample ID	Date	Time	Matrix	No. Containers	VOCs (8260C) (1)	Diss. Metals (2)	Diss. LLHg (3)	Total Metals (2)	Total LLHg (3)	Total & WAD CN (4)	NWTPH-Gx (5)	NWTPH-Dx (6)	Notes/Comments
						Analysis Requested								Notes/Comments
①	Trip Blank	10/7/09	-	DI	2 ~~8~~ 3	✓						~~✓~~ JS1		continued on page 2
②	2-31-PL2-507C-W-Ø	10/7/09		GW	2Ø	* ✓	✓	✓	✓	✓	✓			* Non-preserved VOA's 1

Comments/Special Instructions
Please cc D.Kunkel and L. Shea. + J. Flaherty

(1) - 3-40ml vials w/ HCl
(2) - 1L HDPE w/ HNO3
(3) - 500ml HDPE w/ HNO3
(4) - 500ml HDPE ~~w/ NaOH~~
(5) - 2-40ml vials w/ HCl
(6) - 2-500ml amber glass

*** Dissolved Metals and LLHg are field filtered with 0.45 um filter.

	Relinquished by:	Received by:	Relinquished by:	Received by:
(Signature)	Kristin L. Addis	O. Peterson		
Printed Name:	Kristin L. Addis	O. Peterson		
Company:	EPI	ARI		
Date & Time:	10/7/09 1650	10/7/09 1650		

Limits of Liability: *ARI will perform all requested services in accordance with appropriate methodology following ARI Standard Operating Procedures and the ARI Quality Assurance Program. This program meets standards for the industry. The total liability of ARI, its officers, agents, employees, or successors, arising out of or in connection with the requested services, shall not exceed the Invoiced amount for said services. The acceptance by the client of a proposal for services by ARI release ARI from any liability in excess thereof, not withstanding any provision to the contrary in any contract, purchase order or co-signed agreement between ARI and the Client.*

Sample Retention Policy: Unless specified by workorder or contract, all water/soil samples submitted to ARI will be discarded or returned, no sooner than 90 days after receipt or 60 days after submission of hardcopy data, whichever is longer. Sediment samples submitted under PSDDA/PSEP/SMS protocol will be stored frozen for up to one year and then discarded.

Chain of Custody Record & Laboratory Analysis Request

ARI Assigned Number:	Turn-around Requested: standard	Date: 10/7/2009	
ARI Client Company: The Boeing Company	Phone: -	Page: 2 of 2	
Client Contact: Will Ernst		No. of Coolers:	Cooler Temps:
Client Project Name: Plant 2 - 2-31 Data Gaps Investigation 013-1646-009-200.05			
Client Project #: P2DG-2-31	Samplers: J. Bernthal, K. Addis		

Analytical Resources, Incorporated
Analytical Chemists and Consultants
4611 South 134th Place, Suite 100
Tukwila, WA 98168
206-695-6200 206-695-6201 (fax)

	Sample ID	Date	Time	Matrix	No. Containers	SVOCs & SIM PAHs (7)	PCBs (LL) (8)	TDS (9)	Density (9)	NO2, NO3, SO4 (10)	Ammonia (11)	Sulfide (12)	TOC (13)	Notes/Comments
						Analysis Requested								
1	Trip Blank (continued from previous page)	10/7/09	-	-	-									continued from p. 1
2	2-31-PL2-507C-W-0	10/7/09		-	-	✓	✓	✓	✓	✓	✓	✓	✓	1

Comments/Special Instructions

Please cc D.Kunkel and L. Shea. + J. Floherty

(7) - 4-500ml amber glass
(8) - 2-1L amber glass
(9) - 2-1L HDPE
(10) - 500ml HDPE
(11) - 500 mL HDPE w/ H2SO4
(12) - 500ml HDPE w/ ~~NaOH~~ and Zinc Acetate
(13) - 250mL amber glass w/ H2SO4

Relinquished by: (Signature)	K. L. Addis	Received by: (Signature)	D. Peterson
Printed Name:	Kristin L. Addis	Printed Name:	D. Peterson
Company:	EPT	Company:	ARI
Date & Time:	10/7/09 1650	Date & Time:	10/7/09 1650
Relinquished by: (Signature)		Received by: (Signature)	
Printed Name:		Printed Name:	
Company:		Company:	
Date & Time:		Date & Time:	

Limits of Liability: *ARI will perform all requested services in accordance with appropriate methodology following ARI Standard Operating Procedures and the ARI Quality Assurance Program. This program meets standards for the industry. The total liability of ARI, its officers, agents, employees, or successors, arising out of or in connection with the requested services, shall not exceed the Invoiced amount for said services. The acceptance by the client of a proposal for services by ARI release ARI from any liability in excess thereof, not withstanding any provision to the contrary in any contract, purchase order or co-signed agreement between ARI and the Client.*

Sample Retention Policy: Unless specified by workorder or contract, all water/soil samples submitted to ARI will be discarded or returned, no sooner than 90 days after receipt or 60 days after submission of hardcopy data, whichever is longer. Sediment samples submitted under PSDDA/PSEP/SMS protocol will be stored frozen for up to one year and then discarded.

ENVIRONMENTAL PARTNERS INC 295 NE Gilman Boulevard, Suite 201 Issaquah, Washington 98027 ph 425.395.0010 fax 425.395.0011

2-31 Area Daily Health and Safety Field Book Corrective Measures Study Data Gaps Investigation

Boeing Plant 2
Seattle/Tukwila, Washington
Project Number 17511.1

Environmental Partners, Inc.
295 NE Gilman Blvd. Suite 201
Issaquah, Washington 98027
(425) 395-0010

BOEING PLANT 2
7555 EAST MARGINAL WAY SOUTH, SEATTLE, WA

STANDARD WORK PRACTICES

Health and Safety is **EVERYONE'S** responsibility and **NUMBER ONE PRIORITY**

- Regulatory compliance is **MANDATORY** – No work will begin and/or work will immediately stop unless the answer to the following question is a positive **"YES"** – AM I IN COMPLIANCE WITH ALL REGULATORY, FACILITY, PROJECT, AND HEALTH AND SAFETY REQUIREMENTS?

- All incidents and regulatory inspections must be reported immediately

    - **Incident definition**: Any event condition, or action (including near misses) that affects the safety of personnel, does not follow rules and guidelines for work implementation and regulatory compliance onsite
- Incident examples:
    - Spilled liquid in an uncontrolled environment
    - Working without correct/complete permit in place
    - Performing hot works without a "Hot Works Permit"

Before starting work, **HAVE YOU?** :

1. Reviewed the Health and Safety Plan prior to performing work?
2. Performed a Health and Safety "Tail Gate Meeting" and filled out the sign-in form prior to starting work?
3. Reviewed scope of work documents, permits, and other related items prior to performing work?
4. Provided correct Personal Protective Equipment (PPE) for the work to be performed?

IF YOU ARE UNSURE OF SAFETY PRACTICES FOR THE PARTICULAR WORK INVOLVED – GET CLARIFICATION PRIOR TO STARTING WORK

Working with subcontractors:

- Review Health and Safety Plan with subcontractor
- Review site "Incident Reporting Procedures"
- Perform "Tail Gate Safety Meeting" with subcontractor

SAFETY AND REGULATORY COMPLIANCE IS MY PRIORITY AND I MUST TAKE THE NECESSARY STEPS TO PROVIDE THIS SERVICE

I AM RESPONSIBLE AND I HAVE THE AUTHORITY TO STOP WORK IF THE TASK DOES NOT MEET THE SAFETY AND REGULATORY REQUIREMENTS

SAFETY DASHBOARD CARD

EMERGENCY AND INCIDENT REPORTING PROCEDURES

EMERGENCY PHONE NUMBER:
(206) 655-2222 Fire, Ambulance, Police, Spill Reporting
SITE ADDRESS:
7555 EAST MARGINAL WAY SOUTH, SEATTLE, WA 98108
WORK LOCATION:
Describe using building number and row/column designation

AN EMERGENCY IS AN UNCONTROLLED SITUATION, AN INJURY THAT IS MAJOR OR LIFE THREATENING, FIRE, OR ANYTHING THAT REQUIRES IMMEDIATE ASSISTANCE.

EMERGENCY REPORTING:
1. Contact the PLANT 2 Emergency Response (fire, ambulance, police) at (206) 655-2222
2. Follow Incident Reporting procedures listed below

INCIDENT REPORTING:
Respond to the incident and get it under control. Contact the following by e-mail and brief phone message (**MUST DO BOTH**):

Name	Email Address	Phone Number	Position
Joe Flaherty	Joseph.l.flaherty@boeing.com	(206) 769-5987	Boeing Field Engineer
Jennifer Parsons	jennifer.a.parsons@boeing.com	(206) 715-7981 Cell	Boeing Field Engineer
Fred Wallace	fred.j.wallace@boeing.com	(206) 930-0461 Cell	Boeing Field Engineer
Will Ernst	william.d.ernst@boeing.com	(425) 891-7724 Cell	Boeing Project Manager
Ray Power	raymond.t.power@boeing.com	(425) 495-5030 Cell	Boeing Site Focal
Ted Norton	tnorton@golder.com	(425) 883-0777 Cell	Consultant Contact

When leaving the message state the following:
1. **Date:** The date the incident occurred
2. **Time:** The approximate time the incident occurred
3. **Location:** Where the incident occurred, i.e.; Admin Compound…

When send the email include the following:
1. **Description:** Describe briefly what happened and what it may affect
2. **Time:** The approximate time the incident occurred
3. **Location:** Where the incident occurred, i.e.; Admin Compound…
4. **Description:** Describe briefly what happened and what it may affect

After the incident is under control, the sequence of events will be recorded, including probable cause, people who responded to the incident, the extents of the incident, and relevant dates and times

SIGNATURE PAGE

I have read this Health and Safety Plan and understand its contents. I agree to abide by its provisions and will immediately notify the Site Health and Safety Officer (Josh Bernthal, (425) 241-5400), or designated alternate if site conditions or hazards not specifically designated herein are encountered.

Name (Print)	Signature	Date	Company/Affiliation
Kristin Addis	Kristin J. Addis	8/24/09	EPI
Doug Kunkel	Doug Kunkel	8/24/09	EPI
Ted Norton		8/24/09	GAI
Kerry Lamphere		8-24-09	CDI
Andy Hagan		8-24-09	CDI
Jeremiah Jenkins		8-24-09	CDI
Ted L. Sager		8-24-09	Golder
Jill Lamberts		8-24-09	Golder
Michael Lumpkin		8-24-09	Golder
Joe Flaherty		8-24-09	Boeing
Eric Holliday		8-24-09	GAI
Josh Bernthal		8/31/09	EPI
Jill Lamberts		8/31/09	GAI
Ted Sager		8/31/09	Golder
JACKSON KEY		8-31-09	CASCADE
Elijah Floyd	Elijah Floyd	8-31-09	cascade
Joe Flaherty		8-31-09	Boeing
Joe Flaherty		9-1-09	Boeing
JACKSON KEY		9-1-09	CD
Elijah Floyd	Elijah Floyd	9-1-09	CDI
Ted Sager		9-1-09	Golder
Jill Lamberts		9-1-09	GAI
Josh Bernthal		9-1-09	EPI
Jill Lamberts		9-2-09	Golder

SIGNATURE PAGE

I have read this Health and Safety Plan and understand its contents. I [illegible] and will immediately notify the Site Health and Safety Officer (Josh Ber[illegible]) or designated alternate if site conditions or hazards not specifically designated he[illegible]

Name (Print)	Signature	Date	Company/Affiliation
Steve Stivers	[signature]	8-25-09	CDI
Kerry Lumphear	[signature]	8-25-09	CDI
Andy Flagan	[signature]	8-25-09	CDI
Jill Lamberts	[signature]	8-25-09	Golder
Ted Sager	[signature]	8-25-09	Golder
Kristin Addis	[signature]	8-25-09	EPI
JACKSON KEY	[signature]	9-2-09	CD
Josh Bendahl	[signature]	9/2/09	EPI
Joe Flaherty	[signature]	9/2/09	Boeing
Ted L. Sager	[signature]	9/2/09	Golder
Elijah Floyd	[signature]	9/2/09	CDI
Jill Lamberts	[signature]	9/3/09	GAI
Josh Bendahl	[signature]	9/3/09	EPI
Ted Sager	[signature]	9/3/09	Golder
Elijah Floyd	[signature]	9/3/09	CDI
JACKSON KEY	[signature]	9-3-09	CD
Joe Flaherty	[signature]	9-3-09	Boeing
Kristin Addis	[signature]	9-8-09	EPI
Kasey Gell	[signature]	9-8/09	CDI
Lynn Goble	[signature]	9-8-09	CDI
JACKSON KEY	[signature]	9-8-09	CDI
JACKSON KEY	[signature]	9-9-09	CDI
Jill Lamberts	[signature]	9-8-09	GAI
Jill Lamberts	[signature]	9-9-09	GAI

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Name (Print)	Signature	Date	Company/Affiliation
Kristin Addis	Kristin L. Addis	8/27/09	EPI
Garret Harrington		8/27/09	NW Concrete cutting
Elijah Floyd	Elijah Floyd	9/8/09 / 9/9/09	
Ted Sager		9/8/09	
Ted Sager		9/9/09	
Joe Flaherty		9/8/09	Boeing
Joe Flaherty		9/9/09	Boeing
Josh Bernthal		9/8/09	EPI
Josh Bernthal		9/9/09	EPI
Jill Fenton		9/10/09	GAI
Jill Lamberts		9/11/09	GAI
Ted Sager		9/10/09	GAI
Ted Sager		9/11/09	GAI
Josh Bernthal		9/10/09	EPI
Josh Bernthal		9/11/09	EPI
JACKSON KPI		9-10-09	CDI
JACKSON KPI		9-11-09	CDI
Elijah Floyd	Elijah Floyd	9-11-09	CDI
Jill Lambert		9-14-09	GAI
Josh Bernthal		9-14-09	EPI
Ted Sager		9-14-09	GAI
Elijah Floyd	Elijah Floyd	9-14-09	CDI
JACKSON KPI		9/10/09	CDI
Jill Lamberts	Jill Lamberts	9/15/09	GAI

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Name (Print)	Signature	Date	Company/Affiliation
Ted SAGER		9/15/09	GAI
JACKSON KEY		9-15-09	CASCADE
Elijah Floyd	Elijah Floyd	9/15-09	CDI
Jennifer Parsons	Jennifer Parsons	9-15-09	BOEING
Josh Bernthal		9.15.09	EPI
Jill Lamberts		9.16.09	GAI
Ted Singer		9-16-09	GAI
Josh Bernthal		9/16/09	EPI
Jackson Key		9/16/09	CDI Inc
Elijah Floyd	Elijah Floyd	9/16/09	CDI
Ted Singer		9/17/09	GAI
J Lamberts		9/17/09	GAI
Josh Bernthal		9/17/09	EPI
Jackson Key		9-17-09	CDI
J. Lamberts		9/22/09	GAI
J. Lamberts		9/24/09	GAI
T. Singer		9/24/09	GAI
J. Bernthal		9/24/09	EPI
Jackson Key		9-24-09	CDI
Elijah Floyd	Elijah Floyd	9/24/09	CDI
Joe Flaherty		9/24/09	Boeing
Jill Lamberts		10/1/09	GAI
Jill Lamberts		10/2/09	GAI
Kristin Addis		10/1/09	EPI

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Name (Print)	Signature	Date	Company/Affiliation
Kristin Addis	Kristin L. Addis	10/2/09	EPI
J. Lamberts	Jill Lamberts	10/5/09	GAI
Kristin Addis	Kristin L. Addis	10/5/09	EPI
J. Lamberts	Jill Lamberts	10/6/09	GAI
Kristin Addis	Kristin L. Addis	10/6/09	EPI
Josh Bernthal		10/6/09	EPI
Josh Bernthal		10/7/09	EPI
Kristin Addis	Kristin L. Addis	10/8/09	EPI

ENVIRONMENTAL PARTNERS INC

Attachment C: Health and Safety Plan for 2-31 Area Data Gap Investigation

Boeing Plant 2
Seattle/Tukwila, Washington

Prepared For:

The Boeing Company
P.O. Box 3707
M/C 1W-12
Seattle/Tukwila, WA 98124

April 2009 – Revised September 2009

Prepared By:

Environmental Partners, Inc.
295 NE Gilman Blvd. Suite 201
Issaquah, WA 98027
(425) 395-0010

Douglas C. Kunkel L.G., L.H.G.
Principal Hydrogeologist

BOEING CONTACTS

Jennifer Parsons: ..... **(206) 715-7981 (cell)**
Will Ernst: ..... **(425) 891-7724 (cell)**
Mike Gleason: ..... **(206) 290-6576**

EPI CONTACTS

Josh Bernthal: ..... **(425) 241-5400 (cell) (425) 395-0024 (office)**
Doug Kunkel: ..... **(425) 241-8170 (cell) (425) 395-0016 (office)**

GOLDER CONTACT

Ted Norton ..... **(206) 755-4970 (cell) (425) 885-7648 (office)**

EMERGENCY CONTACTS AND EMERGENCY INFORMATION

****Boeing Emergency Number: ..... 206-655-2222 Call First****
POLICE: **911**
FIRE: **911**
FIRST AID: **911**

In the event of an emergency, be prepared to give the following information:

- Location of Emergency

  Site Location: ..... **The Boeing Company**
  7755 East Marginal Way South
  Seattle, Washington 98108
  Landmarks: ..... **West of Boeing Field and East of the Duwamish Waterway**
  Nearest Cross Street: ..... **South of 16th Ave South**

- Phone Number That You Are Calling From: ..... **LOOK ON PHONE**

- What Happened?
  * Type of Accident
  * Type(s) of Injuries
- How Many People Need Help?

Additional Emergency Information:

- **Boeing Emergency Number: 206-655-2222**

- Hospital Name: ..... **Harborview Medical Center**
  Address: ..... **325 9th Avenue (Map in Figures Section)**
  City, State, Zip Code: ..... **Seattle, Washington 98104**
  Phone Number: ..... **(206) 731-3000**

- Contact a Principal at Environmental Partners, Inc. after Emergency Services have been called.
  Environmental Partners, Inc. ..... **(425) 395-0010 (office)**
  Thom Morin (Principal) ..... **(206) 342-6957 (cell)**
  Doug Kunkel (Principal) ..... **(425) 241-8170 (cell)**

1.0 PLAN OBJECTIVES AND APPLICABILITY

This Health and Safety Plan has been written to comply with the standards prescribed by the Occupational Safety and Health Act (OSHA) and the Washington Industrial Safety and Health Act (WISHA).

The purpose of this health and safety plan is to establish protection standards and mandatory safe practices and procedures for all personnel involved with field activities associated with the 2-31 Area Data Gap Investigation at the Boeing Plant 2. This plan assigns responsibilities, establishes standard operating procedures, and provides for contingencies that may occur during field activities. The plan consists of site and facility descriptions, a summary of work activities, an identification and evaluation of chemical and physical hazards, monitoring procedures, personnel responsibilities, a description of site zones, decontamination and disposal practices, emergency procedures, and administrative requirements.

Mr. Josh Bernthal, of Environmental Partners, Inc. (EPI) is the designated Site Health and Safety Officer. Mr. Doug Kunkel and Mr. Ted Norton are designated as alternate Site Health and Safety Officers. As Site Health and Safety Officer, Mr. Bernthal has total responsibility for ensuring that the provisions outlined herein adequately protect worker health and safety and that the procedures outlined by this Health and Safety Plan are properly implemented. In this capacity, Mr. Bernthal will conduct ongoing oversight and site inspections to ensure that this Health and Safety Plan remains current with potentially changing site conditions. Mr. Bernthal has the authority to make health and safety decisions that may not be specifically outlined in this plan, should site conditions warrant such actions. In the event that Mr. Bernthal leaves the site while work is in progress, an alternate Site Health and Safety Officer will be designated.

The provisions and procedures outlined by this Health and Safety Plan apply to all contractors, subcontractors, owner's representatives, oversight personnel, and any other persons involved with the field activities described herein. All such persons are required to read this Health and Safety Plan and indicate that they understand its contents by signing the Site Health and Safety Officer's copy of the Plan. In addition, all such persons are required to provide documentation of their current certification under Occupational Safety and Health Administration's (OSHA) Hazardous Waste Operations and Emergency Response (HAZWOPER) regulation, 29 CFR 1910.120. Copies of this Health and Safety Plan have been distributed to a designated representative of the following companies and/or organizations:

- The Boeing Company

It should be noted that this Health and Safety Plan is based on information that was available as of the date indicated on the Title Page. It is possible that additional hazards that are not specifically addressed by this Health and Safety Plan may exist at the work-site, or may be created as a result of on-site activities. It is EPI's firm belief that active participation in health and safety procedures and acute awareness of on-site conditions by all site workers is crucial to the health and safety of everyone involved. If you identify a site condition that is not addressed by this Health and Safety Plan, or if you have any questions or concerns about site conditions or this Plan, immediately notify the Site Health and Safety Officer.

3.0 HAZARD EVALUATION AND RISK ANALYSIS

In general, there are three broad hazard categories that may be encountered during site work; Chemical Exposure Hazards, Fire/Explosion Hazards, and Physical Hazards. Subsections 3.1 through 3.3 address specific hazards falling within each of these broad categories.

3.1 Chemical Exposure Hazards

Table 1 presents chemical-specific data regarding permissible exposure levels (PELs), likely pathways of exposure, target organs that will likely be affected by exposure, and likely symptoms of exposure for hazardous substances that are potentially present at the site. Table 1 data were compiled from the NIOSH Pocket Guide to Chemical Hazards, September 2007 edition. It should be noted that the PELs are the regulated limits; Recommended Exposure Limits (RELs) by NIOSH are guidance but are listed as a reference.

Table 1: Chemical-Specific Exposure Data

Chemical Name	REL*	PEL*	IDLH*	Exposure Route	Target Organs	Symptoms
Aroclor (1242) [CAS 53469-21-9]	NE	NE	NE	See Total PCB	See Total PCB	See Total PCB
Aroclor (1248) [CAS 12672-29-6]	NE	NE	NE	See Total PCB	See Total PCB	See Total PCB
Aroclor (1254] [CAS 11097-69-1]]	NE	NE	NE	See Total PCB	See Total PCB	See Total PCB
Arsenic (elemental) [CAS 7440-38-2]	0.002 mg/m^3	0.010 mg/m^3	5 mg/m^3	Inhalation; ingestion; skin/eye contact	Skin; respiratory system; kidneys; central nervous system; liver; GI tract; respiratory system	Irritation of skin; dermatitis; respiratory distress; diarrhea; kidney damage; muscle tremor; convulsions; GI tract; reproductive effects; lover damage
Benzo(a)anthracene [CAS 56-55-3]	NE	NE	NE			
Benzo(a)pyrene (coal tar pitch volatiles) [CAS 50-32-8]	0.1 mg/m^3	0.2 mg/m^3	80 mg/m^3	Inhalation; skin/eye contact	Skin; respiratory system; bladder, kidneys.	Dermatitis; bronchitis.
Benzo(b)fluoranthene (coal tar pitch volatiles) [CAS 205-99-2)]	0.1 mg/m^3	0.2 mg/m^3	80 mg/m^3	See Benzo(a)pyrene (coal tar pitch volatiles)	See Benzo(a)pyrene (coal tar pitch volatiles)	See Benzo(a)pyrene (coal tar pitch volatiles)
Benzo(k)fluoranthene (coal tar pitch volatiles) [CAS 207-08-9]	NE	NE	NE	See Benzo(a)pyrene (coal tar pitch volatiles)	See Benzo(a)pyrene (coal tar pitch volatiles)	See Benzo(a)pyrene (coal tar pitch volatiles)
Cadmium (dust) [CAS 7440-43-9]	Lowest possible exposure	0.005 mg/m^3	9 mg/m^3	Inhalation; ingestion	Respiratory system, kidneys, prostate, blood	Pulmonary edema, dyspnea, cough, chest tightness, substernal pain, headache, chills, muscular aches, nausea, vomiting, diarrhea, anosmia, emphysema, proteinuria, mild anemia
Chrysene [CAS 218-01-9] (1,2-benzphenanthracene)	NE	NE	NE	See Benzo(a)pyrene (coal tar pitch volatiles)	See Benzo(a)pyrene (coal tar pitch volatiles)	See Benzo(a)pyrene (coal tar pitch volatiles)
Copper (dust) [CAS 7440-5-8]	1 mg/m^3	1 mg/m^3	100 mg/m^3	Inhalation; ingestion; skin/eye contact	Eyes, skin, respiratory system, liver, kidneys	Irritation of eyes, nose and pharynx, nasal septum perforation, metallic taste, dermatitis.

3.3 Physical Hazards

Following is a summary of a variety of physical hazards that may be encountered on the job-site. For convenience, these hazards have been categorized into several general groupings and suggested preventative measures are also included.

Two of the soil-boring locations, 2-31-DP-13 and 2-31-DP-14, are located within a public roadway and the services of a traffic control subcontractor will be used to protect worker safety. Traffic flaggers will be onsite during the work at these two locations to manage and control traffic. A Traffic Control Plan is attached to the end of this Health and Safety Plan.

Category	Cause	Prevention
Head Hazards	Falling and/or sharp objects, bumping hazards.	Hard hats will be worn by all personnel at all times when overhead hazards are present.
Foot/Ankle Hazards	Sharp objects, dropped objects, uneven and/or slippery surfaces, chemical exposure	Chemical resistant, steel-toed boots must be worn at all times on-site.
Eye Hazards	Sharp objects, poor lighting, bright lights (welding equipment), exposure due to splashes	Safety glasses/face shields will be worn when appropriate. Shaded welding protection will be worn when appropriate.
Electrical Hazards	Underground utilities, overhead utilities	Locator service mark-outs, visual inspection of work area prior to starting work.
Mechanical Hazards	Heavy equipment such as drill rigs, service trucks, excavation equipment, saws, drills, etc.	Competent operators, backup alarms, regular maintenance, daily mechanical checks, proper guards.
Noise Hazards	Machinery creating >85 decibels TWA, >115 decibels continuous noise, or peak at >140 decibels	Wear earplugs or protective ear muffs when appropriate.
Fall Hazards	Elevated and/or slippery or uneven surfaces. Trips caused by poor "housekeeping" practices	Care should be used to avoid such accidents and to maintain good "housekeeping". Fall protection devices must be used when work proceeds on elevated surfaces.
Lifting Hazards	Injury due to improper lifting techniques, overreaching/overextending, heavy objects	Use proper lifting techniques, mechanical devices where appropriate.
Lighting Accidents	Due to improper illumination	Work will proceed during daylight hours only, or under sufficient artificial illumination.
Traffic Hazards	Two soil borings located in active roadway	Use flaggers provided by traffic control subcontractor to manage traffic. Wear orange safety vest, be aware of surroundings, and look both ways before walking.

4.1.2 Action Levels

Photoionization Detector (PID)

Response	Length of Time	Protective Measure
< 5 ppm	15 minute average	Level D PPE
>1 ppm over background	15 minute average	Evaluate vinyl chloride concentrations relative to total VOCs using colorimetric tubes
5-25 ppm	15 minute average	Allow work area to vent. If persistent: Level C
25-50 ppm	Sustained over 15 minutes	Level C PPE, High-efficiency organic vapor cartridges in respirator
> 50 ppm	One (1) minute average	Vacate work area, notify Site Health and Safety Officer or designated alternate immediately

It should be noted that these action levels are based on the presence of benzene and vinyl chloride which have the lowest PELs and STELs of the compounds listed in Table 1.

4.2 Site Monitoring

The Site Health and Safety Officer will visually inspect the work-site at least daily to identify whether any new potential hazards have arisen. If and whenever possible, immediate measures will be taken to eliminate, or reduce the risks associated with these hazards.

4.3 Personal Protective Equipment (PPE)

It is anticipated that all field tasks will be performed in Level D PPE unless additional PPE is required because of task or site-specific upgrades. Level D PPE includes the following items:

- Nitrile inner and outer gloves
- Steel toe, steel shank work boots. Neoprene steel-toe, steel shank boots for ground water sampling and for drilling below the water table
- Hearing protection during drilling activities
- Hard hat during drilling activities and excavation work
- Safety glasses
- Cotton or Tyvek coveralls required
- Orange safety vest when working in or near roadway

Level C PPE includes all Level D items plus the following:

- Full-face respirator equipped with organic vapor/HEPA combination cartridges (full face respirator replaces safety glasses for eye protection),
- Tyvek or Saranex coveralls
- Neoprene steel-toe, steel shank boots

6.0 SITE CONTROL

The following section identifies several activity zones located on the work-site. It should be noted that access to some of these activity zones (i.e. the exclusion zone) will be restricted to designated personnel.

The work site is secured. Pedestrians and other unauthorized personnel will not be allowed within the exclusion zone.

6.1 Contamination Reduction Zone

A specified area will be established for the decontamination of sampling equipment and personnel. Because the location of this zone will change during the course of the investigation the site safety office will discuss the contaminant reduction zone location during each daily safety briefing.

6.1.1 Decontamination Procedures - Equipment

Split-spoon samplers and other down-hole equipment will be decontaminated with a solution of Liquinox™ or equivalent soap and potable water and rinsed with distilled or deionized water prior to collecting soil samples for analysis as noted in Section 3.8.2 of the work plan. An alternative method of decontamination is to hot water pressure wash all down-hole sampling and drilling equipment. All decontamination wastes will be containerized, properly marked, and left in a designated on-site location for disposition by Boeing.

6.1.2 Decontamination Procedures - Personnel

All personal protective clothing (i.e. nitrile gloves) and other miscellaneous waste will be bagged in opaque garbage bags and will be discarded in the trash. All on-site personnel must, at a minimum, wash their face and hands before eating, before break periods, and prior to leaving the site as noted in Section 3.8.3 of the work plan.

8.0 ADMINISTRATIVE

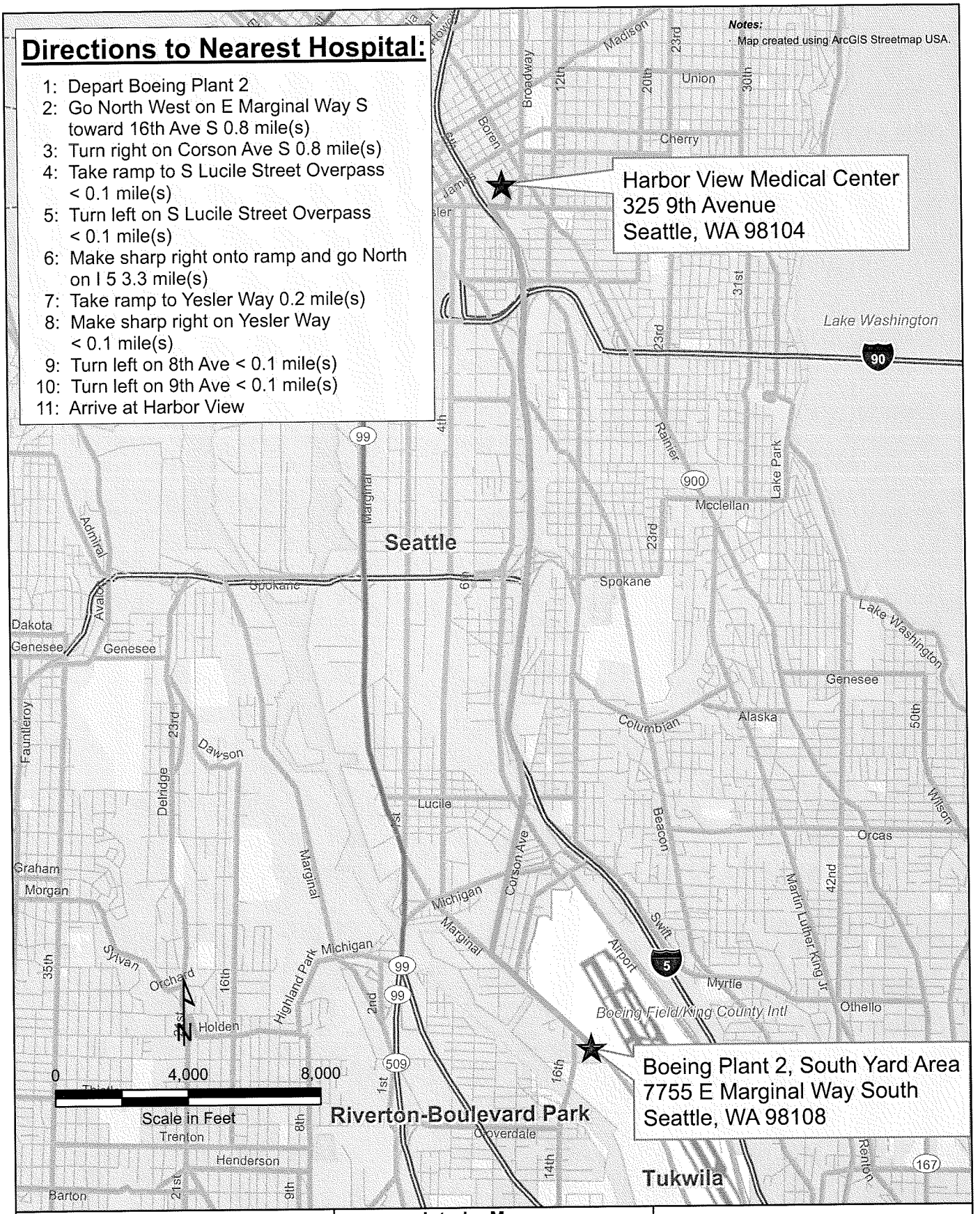
8.1 Medical Surveillance

Personnel involved with field activities must be covered under their employer's medical surveillance program that includes annual physical examinations and certification to wear respiratory protective equipment. These medical monitoring programs must be in compliance with all applicable worker health and safety regulations.

8.2 Record Keeping

The Site Health and Safety Officer, or a designated alternate, will be responsible for keeping daily logs of workers and visitors present at the work site, attendance lists of personnel present at site health and safety meetings, accident reports, air monitoring results, and signatures of all personnel who have read this Health and Safety Plan.

Figures



FLOYD | SNIDER strategy • science • engineering	**Interim Measure Health and Safety Plan for the South Yard Area Boeing Plant 2 Seattle / Tukwila, Washington**	Figure 1 Route to Hospital Map

File: F:\projects\Boeing - Plant 2\GIS\South Yard Interim Measures\HASP\Figure X (Route to Hospital Map).mxd
3/24/2008 4:13 PM

Seattle Dept of Transportation
Street Use Permits, 23rd Floor
700 Fifth Ave, Suite 2300
P O Box 34996
Seattle, WA 98124-4996

UTILITY PERMIT

Permit No.: 97212

PERMITTEE

Inspector: David Soule
Inspection District: INDUSTRIAL

LOCATION

Address: 7755 EAST MARGINAL WAY S

Details: (2)(2") TEST BORES IN THE SOUTH-BOUND CURB LANE OF E MARGINAL WAY S.

Application Date: 9/2/09 1:45 pm
Issue Date: 9/10/09 3:18 pm

PARTIES (* Primary Applicant)

Role	Name	Address	Phone	From	To
*24 Hour Contact	TED, NORTON	18300 NE UNION HILL RD,,REDMOND,WA,98052	(206)755-4970		
Permittee	GOLDER ASSOCIATES	18300 NE UNION HILL RD STE #200,,REDMOND,WA,98052-3333	(425)883-0777		

PERMITTED USES

Right of Way: ARTERIAL **DPD #:** **To Be Restored By:** PERMITTEE

Use	Space	Start Date	Duration	Max Allowed Date	Sq. Ft.	Issued Date	Intended Vacate Date
511	A	9/21/09	10	9/30/09	330	9/10/09	9/30/09

Use	Space	Description	Conditions
511	A	Preparatory and exploratory work for upcoming projects, including surveying, installing monitoring wells, and soil sampling.	

CONDITIONS OF USE

ADDITIONAL CONDITIONS:

Additional Notes: *(2)(2") Test Bores in the South-bound curb lane of E Marginal Way S.*

ARTERIAL PERMIT: ARTERIAL STREETS shall be open to its full driving width between the hours of 7-9:00am and 4-6:00pm weekdays. At all other times it may be reduced to one lane in each direction. Permittee shall contact King County/METRO Transit (684-2732) five days prior to starting any work which may affect bus stop zones or other bus operations. Maintain a 4-foot wide walkway for pedestrians around the work area. Permittee shall contact all residents who may be affected by this work at least 72 hours before the start of work. A minimum of one week's advance notice shall be given by permittee to the affected businesses/residents when driveway or delivery access will be restricted. Access to all businesses shall be maintained during construction. All driveways will be cleared and accessible at the end of every work day. Permittee is responsible to have parking restriction easels up a minimum of 24 hours in advance of the need to clear parking within the construction zone. Parking restriction easels must show either the permittee's or contractor's name and phone number. Permittee shall coordinate this work with any other contractors working near its work zone to avoid conflicts. Tree roots 2" or more in diameter shall not be cut or damaged. Permittee shall contact the City Arborist Office (684-7649) a minimum of two working-days prior to digging within the "drip line" of any street trees.

No permanent restoration of street or alley pavement shall be done by permittee or its contractor until a City of Seattle/Seattle Transportation-Street Use inspector has marked the periphery of the pavement to be repaired and/or replaced.

4. ***Superiority of street improvement contracts.*** Rights acquired under this permit are inferior to those acquired under existing or future street improvement contracts.
5. ***Compliance with technical requirements and standards.*** All work within the public right-of-way must be performed and completed in accordance with requirements set forth in the following technical documents published by the City of Seattle, as now or hereafter amended: Right-of-Way Improvements Manual; Standard Specifications for Road, Bridge, and Municipal Construction; Standard Plans for Municipal Construction; Street and Sidewalk Pavement Opening and Restoration Rule; and Traffic Control Manual for In-Street Work.
6. ***Scope of Work.*** The Permittee shall construct the improvements reflected in, and in accordance with, this permit and the City approved construction plans. Any and all revisions, omissions and / or additions to the scope of work shall be reviewed and approved by the City prior to implementation.
7. ***Notification prior to starting work.*** Permittee shall be responsible for notifying Street Use Job Start at (206) 684-5270 or SDOTJobStart@Seattle.gov <mailto:SDOTJobStart@Seattle.gov> twenty-four (24) to seventy-two (72) hours prior to the start of work and provide the following information:
   - Permit Number
   - Job Site Address
   - Start Date
   - Brief Work Description
   - Job Site Contact Name and Phone Number

   Failure to do so will result in a penalty of $300, or such other amount as may be established pursuant to SMC 15.04.074.
8. ***Coordination of work.*** In performing work authorized by this permit, the Permittee shall coordinate with other contractors working in the public right-of-way to minimize the impact to the public.
9. ***Hours of work.*** Work performed within the public right of way shall occur only during hours authorized under the City of Seattle Noise Control ordinance, codified at Chapter 25.08 SMC, and the Traffic Control Manual for In-Street Work, as now or hereafter amended.
10. ***Inspection fees.*** Permittee shall pay for city inspections of work authorized under this permit at a rate of $150 per hour, or such other amount as may be established pursuant to SMC 15.04.074, and to cover all other associated costs.
11. ***Billing.*** All fees and costs billed pursuant to this permit shall be paid to the City of Seattle within thirty (30) days from the date of the invoice. Any invoice more than ninety (90) days past due will be forwarded for collection. All past due amounts will accrue interest at twelve (12) percent per annum. In the event suit is commenced to collect on unpaid invoices, the prevailing party will be entitled to reasonable attorney fees and costs of litigation.
12. ***Deposits, Charges, and Future Billings.*** The Permittee is responsible for all permit charges. If a deposit was made for estimated future street use services, any unused portion of the deposit will be refunded to the Permittee. Any charges in excess of the deposit will be billed to the Permittee.
13. ***Indemnification.*** The Permittee agrees to defend, indemnify, and hold harmless the City of Seattle, its officials, officers, employees, and agents against: (1) any liability, claims, causes of action, judgments, or expenses, including reasonable attorney fees, resulting directly or indirectly from any act or omission of the Permittee, its contractors, subcontractors, anyone directly or indirectly employed by them, and anyone for whose acts or omissions they may be liable, arising out of the Permittee's use or occupancy of the public right-of-way; and (2) all loss by the failure of the Permittee to fully or adequately perform, in any respect, all authorizations or obligations under this Permit.

EXISTING IMPROVEMENTS

1. ***Costs of damage to city property and improvements.*** Permittee shall be responsible for the costs of repairing any damage to city property or improvements resulting from work performed by or on behalf of the permittee within the public right-of-way.
2. ***Utility protection.*** The Permittee shall be responsible for checking locations and providing adequate protection for all utilities in the work area.
3. ***Notification prior to ground disturbance.*** The Permittee shall call Utility Underground Locator Center (1-800-424-5555) a minimum of 48 hours prior to ground disturbance.
4. ***Utility relocation.*** Any necessary utility relocation shall be at the expense of the Permittee, who shall be responsible for notifying affected utilities and requesting the service relocation.
5. ***Survey monuments.*** Prior to removing, destroying, disturbing, or covering a survey monument, such that the survey point is no longer visible or readily accessible, Permittee shall obtain a permit from the Department of Natural Resources pursuant to Washington Administrative Code, Chapter 332-120.

RESTORATION

1. ***Full and continuous restoration.*** The public right-of-way shall be left in original or better condition, continuous with work progress.
2. ***Environmental protection.***
   2.1 Best management practices required. The Permittee shall be responsible for the control of surface runoff, erosion and sediment at the construction site, as required by: the Stormwater code (Title 22 Subtitle VIII SMC), the Standard Specifications for Road, Bridge, and Municipal Construction and Department of Planning and Development Director's Rule 16-2000, as now or hereafter amended. The site and the surrounding area shall generally be kept clean and free of construction debris or other material, including but not limited to mud, dust, rock, asphalt, and concrete. Waste materials shall be collected and disposed of at an appropriate disposal site. These materials shall be prevented from entering any part of the public sewer and storm drain system, and any surface waters.

TRAFFIC CONTROL REQUIREMENTS

(1)

City of Seattle
Seattle Department of Transportation
Street Use Division
700 Fifth Avenue, Suite 2300
Seattle, Washington 98104-5043

Permit Number
97212

Street Use Permit Checklist and Review Transmittal

Project Location: 7755 East Marginal Way S.

FROM: SDOT, Street Use Division, SMT 39-00
Phone No. (206) 684-5283 Fax No. (206) 684-5347
Email Address: sdotpermits@seattle.gov

Application Acceptance Date: 09/02/09

RECEIVED
SEP 03
S.D.O.T.
TRAFFIC MANAGEMENT DIV.

If comments are due sooner than 10 business days, please specify the reason for the shortened review period:

APPLICATION INTAKE CHECKLIST (The following information must be verified at application submittal)

- [X] APPLICATION COMPLETE ☐ ON-LINE PERMIT APPLICATION
- [X] ENTER APPLICATION INFORMATION INTO HANSEN
- [X] STREET CLASSIFICATION CORRECT ☑ ARTERIAL ☐ NON-ARTERIAL CC
- [X] MOBILITY IMPACTS ARE CORRECT BASED ON SITE PLAN AND TYPE OF WORK
- ☐ FOR NON-ARTERIAL STREETS – ENTER MOBILITY IMPACTS INTO HANSEN
- [X] GIS SPECIAL CONDITIONS CHECK – ENTER ENDORSEMENTS INTO HANSEN BASD ON GIS
- [X] **PLAN CHECK (CHECK ALL THAT ARE REQUIRED IN THE REVIEW BOX BELOW)**
- [X] PLANS COMPLETE – VERIFY INFORMATION IS COMPLETE ON REQUIRED PLANS. ITEMS MAY INCLUDE:
  - SITE PLAN - TITLE, PERMIT NUMBER, WORK ZONE LOCATION AND DIMENSIONS
  - TCP - TITLE, PERMIT NUMBER, HOURS OF WORK, CONTACT INFORMATION
  - RESTORATION PLAN – REQUIREMENTS PER USE CODE AND PROJECT LOCATION

- [X] STAGE PROGRESS TO **APPLICATION PROCESSED** IN HANSEN
- [X] COLLECT DEPOSIT OR ☐ BILLING
- ☐ COPY COMPLETED REVIEW CHECKLIST FOR FILE AND EACH REVIEWER
- ☐ DISTRIBUTE PERMIT APPLICATION SUBMITTAL PER THE SDOT REVIEW BELOW AND PLACE 1 COPY IN APPROVED DOCUMENTS FILE

PERMIT PLAN REVIEW CHECKLIST

PLANS	RQ'D	REVIEWER	CIRC DATE	DUE DATE	APPRVD	DENIED	DATE
SITE PLAN / FIELD REVIEW	☑	DSE	09/02/09		09/02/09		09/02/09
TCP	☑	M. Vancil	09/02/09	09/12/09	9/		9/3/09
RESTORATION PLAN	☐						
OTHER:	☐						
OTHER:	☐						

[X] **PERMIT REVIEW COMPLETE** **INITIALS:** 9/3/09 JM
[X] **APPLICANT NOTIFIED** **DATE** 9/3/09 **INITIALS:** JM

96408

WORK DESCRIPTION (continued)

DETAILED DESCRIPTION *(Please provide a detailed description of the work proposed in the space below)*

Drill and sample two 2-inch dia soil boring to ~ 14 feet below ground surface and collect groundwater samples for environmental investigation. Boring will be abandoned in accordance with Chapter 173-160 WAC by licensed driller

IMPACTED INFRASTRUCTURE *(Check all that apply)*

- ☐ Alley
- ☒ Asphalt Street
- ☐ Concrete Street
- ☐ Curb and Gutter
- ☐ Curb Ramp
- ☐ Paved Shoulder
- ☐ Planting Strip
- ☐ Sidewalk
- ☐ Traffic Circle
- ☐ Trees
- ☐ Unimproved ROW
- ☐ Unpaved Shoulder
- ☐ Utility Structures
- ☐ No Impact
- ☐ Other ROW _____
- ☐ Other ROW _____

MOBILITY IMPACT *(Check all that apply)*

- ☐ Alley Closed
- ☐ Alley Partially Blocked
- ☐ Bike Lane Closed
- ☐ Bike Lane Partially Blocked
- ☐ Multi-Travel Lanes Closed
- ☐ Parking Lane Closed
- ☐ Sidewalk Closed
- ☐ Sidewalk Partially Blocked
- ☐ Street Closed
- ☒ Travel Lane Closed
- ☐ No Impact

TERMS

Indemnification
The Permittee agrees to defend, indemnify, and hold harmless the City of Seattle, its officials, officers, employees, and agents against: (1) any liability, claims, causes of action, judgments, or expenses, including reasonable attorney fees, resulting directly or indirectly from any act or omission of the Permittee, its subcontractors, anyone directly or indirectly employed by them, and anyone for whose acts or omissions they may be liable, arising out of the Permittee's use or occupancy of the public right-of-way; and (2) all loss by the failure of the Permittee to fully or adequately perform, in any respect, all authorizations or obligations under the Permit.

Acceptance of terms, conditions, and requirements
Permittee shall accept the terms, conditions, and requirements of the permit and agree to comply with them to the satisfaction of the Seattle Department of Transportation, Street Use Division. Permittee further agrees to comply with all applicable city ordinances, including but not limited to Title 15 SMC, and all applicable requirements of state and federal law. Work shall begin within six months from the date of approval unless other arrangements are made, otherwise the application shall be void.

Applicant or Authorized Agent Statement
I declare under penalty of perjury under the laws of the State of Washington that: I am the Applicant AND the Owner OR the authorized agent of the owner; that the information provided herein is correct and complete; and that I have the authority to bind the owner to this application.

Deposits, Charges, and Future Billings
The Permittee is responsible for all permit charges. If a deposit was made for estimated future Street Use services, any unused portion of the deposit will be refunded to the permittee. Any charges in excess of the deposit will be billed to the Permittee.

APPLICANT SIGNATURE: _____ DATE: _____

(Official Use)

REQUIRED AT APPLICATION
- ☐ Site Plan
- ☐ Restoration Plan
- ☐ Traffic Control Plan
- ☐ Deposit: $ _____

REQUIRED PRIOR TO ISSUANCE
- ☐ Annual Permit
- ☐ BIA Approval
- ☐ Bond
- ☐ Historic District Approval
- ☐ Holiday Moratorium Waiver
- ☐ Indemnity Agreement
- ☐ Noise Exemption
- ☐ PACT Waiver
- ☐ Pavement Moratorium Waiver
- ☐ Proof of Insurance
- ☐ SEPA Review

COMMENTS: _____

APPLICATION ACCEPTED BY: _____ DATE: _____

APPLICATION APPROVED BY: _____ DATE: _____

SIGNATURE PAGE

I have read this Health and Safety Plan and understand its contents. I agree to abide by its provisions and will immediately notify the Site Health and Safety Officer (Josh Bernthal, (425) 241-5400), or designated alternate if site conditions or hazards not specifically designated herein are encountered.

Name (Print)	Signature	Date	Company/Affiliation
Jill Lambertz	Jill Lambertz	9/21/09	GAI
Kristin Addis	Kristin F. Addis	9/21/09	EPI
Ted Sager	Ted Sager	9/21/09	GAI
Josh Bernthal	Josh Bernthal	9/21/09	EPI
Joe Flaherty	Joe Flaherty	9/21/09	Boeing
Jackson Kay	Jackson Kay	9-21-09	CDI
Elijah Floyd	Elijah Floyd	9-21-09	CDI
Garret Harrington	Garret Harrington	9-21-09	NWCC

8/12/2009 2-31 Data Gaps 013-1646.009.2005

J. Lamberts
8am - onsite w/ K. Addis, D. Kunkel, J. Parsons, T. Norton to do walk through of 2-31 site locations.
- All notes are on spreadsheet of locations provided by T. Norton.

1030pm offsite.

JLP

8/19/2009 2-31 Data Gaps 013-1646.009.05

1130am - J. Lamberts onsite w/ K. Addis, J. Flaherty to do walk through of 2-31 locations for utility locates.

2-31-DP-46	→ moved 2' SW from original loc.
2-31-DP-44	→ moved 3'E, 4'S
2-31-DP-45	9'W/10'N
2-31-DP-20	5'S
2-31-DP-18	13'N
2-31-DP-50	moved S inside 2-41 bldg

1300pm - met w/ M. Lumphin + E. Holliday - organized sample bottles + equipment.

1400pm J. Lamberts off site.

08/24/09

2-31 DGI 013-1646-009-200-05

0700 T. Sagel + J. Lamberts onsite
0730 Organize equipment +
0751 Cal PID : Sea 0250, PID 2020
- zero
- span to 100ppm with isobutylene
0800 K. Addis, D. Kunkel (EPR) onsite
T. Norton, E. Holliday, M. Lumpkin (Golder) onsite
J. Flaherty onsite.
Cascade onsite

Things to get:
- garbage bags - water - spoon.
- wipes - first aid kit ✓ - duct tape ✓
- boots - extinguisher ✓ - sunshade
- tyvek suits - butter knife - plastic ✓
- clippers. Andy - 425-210-8174

0815 Health + Safety Mtg:
- Heat Stress - Overhead hazards
- Slip, Trips, Falls. - Heavy equipment
- Hearing - Hard Hat
- PPE - Tyvek, Gloves
- First Aid - Traffic
- Emergency Shutoff - Fire extinguisher
- Air - Quality -

013-1646-009-200-05 8/24/2009

0900 T. Norton, D. Kunkel offsite
0900 Mobilization @ PL2-507B + PL2-507C (well locations) by 2-22 Bldg
Call Boeing security to open gate D-22 @ NE corner of 2-22

1001: Drillers setting up at site

Hole 507C ~4.5' from second Lowe

1031 Core through Asphalt 0.25 ft

1035 plastic placed

1050 Sample # 2-31-PL2-507C-01-W-3, equipment blank through split spoon + liner.

1106 Sample # 2-31-PL2-507C-01-S-0
- noador, PID 0.7ppm
- hole had to be dug by hand for first 2 feet, sample 0-1 ft was scraped from sides of hole into ziplock bag. 5035 sampling performed from ziplock bag initially, but, field crew was instructed to take VOCs sample taken from wall of soil pit - *

1121 2-31-PL2-507C-01-S-0

2-31 DGI 8/24/09 013-1646-009-200.05

1127 2nd Sample 4-5.5ft
2-31-PL2-507C-04-S-0
PID: 0.1 ppm
- low recovery.
- not enough sample for all COCs.
- with split spoon + liner

1137 3rd Smpl 9-10.5ft
2-31-PL2-507C-09-S-0
PID: 0.1 ppm
- with split spoon + liner.

* continued from previous page:
- ~~Protocol~~ steps: sides were scraped to expose fresh soil, then 5035 samplers used to take sample from 0-1 ft bgs.

T. Norton was consulted, it was decided that the rig be moved over 1 ft to side of original hole + a split spoon be driven to 0-1 ft bgs. to resample following WP protocol; rather than having a deviation. Original sample is to be disposed of.

1400 Break
1420 Resume Drilling at 65'
1500 Drilling to 81.5' bgs final depth of borehole
1510 Resample 2-31-PL2-507C-01-S-0
at 0-1 ft bgs, moved 1 ft to S of first hole. collected btwn 1-2ft bgs.
1517 Collect Sample @ 2-31-PL2-507C-01-S-0

2-31 DGI 8/24/09 013-1646-009-200.05

10 11 12 Blow counts
Recovery 1.5/1.5

Dense olive gray non-stain VF-C SAND, little f-c gravel, trace silt, damp, FILL

1600 JM & Ted S. off site, to lab.

16:23 Dropped samples off at ARI Lab.

1645. T. Sagu offsite

1653 - J. Lamberts, J. Flaherty onsite well being installed + built.

Drillers Names (Cascade): Andy Flagon, Kerry Lamphew, Jeremiah Jenkins

1800 - well complete, monument to be installed tomorrow. Screen @ 65-75 ft bgs.

1801.
J. Flaherty instructs Golder + EPI to wash outside of drums tomorrow.
- all drums on pallets, with labels, bolts facing outwards.

1815 - J. Lamberts, K. Addis, J. Flaherty + Cascade off site

JSL

2-31DGI 8/25/09 013-1646009.200.05

0645 J. Lamberts + T. Sager @ Grainger for equipment plant 2

0720 J. Lamberts + T. Sager @ Boeing for mobe.

0745 M. Lampkin @ Plant 2 connex

0750 Calibrate PID Sea 0250, PID 2020
- zeroed
- span to 100 ppm with Isobutylene
- Initial reading @ 13.8 ppm before span

0820 Cascade onsite Andy, Kerry + Steve

0820 Meet @ NE corner of 2-22 for drilling of well PL2-507B to 45 ft + completion of monument for PL2-507C. K. Addis (EPI) onsite already with opened gates.

0900 Cascade continuing to mobilize

0920 Health + Safety mtg
- PPE
- Heat
- Heavy equipment
- First Aid
- Hearing
- Chemical Hazards
- bees
- pinch points
- slips, trips, falls
- Five Extinguisher
- Traffic

0930 - Start drilling @ PL2-507B to collect sample from 0-1 ft bgs

2-31DGI 8/25/2009 013-1646-009.200.05

0948 2-31-PL2-507B-01-S-0 sampled from 0-1' depth bgs

0954 2-31-PL2-507B-04-S-0 sampled from 4-5' depth bgs

1001 2-31-PL2-507B-09-S-0 sampled from 9-10' depth bgs.

1030 Recalibrated PID
- zero
- span to 100 ppm.

1050 J. Lamberts offsite to ARI labs

1151 J. Lamberts onsite

1110 ~~50~~ Boring @ PL2-507B termated @ 50 ft

1120 Set screen @ 35-45 ft bgs

Sketch of intersection
- to scale
- borings
- overhead utilities
- road marking, lanes,
- stoplight, turn signal
- traffic effects
- utility maps, cent of lane to lft.
- traffic control plan

Gate B-42 (W side of 2-25 along 16th)

2-31DGI 8/25/09 013-1646-009.200.05

1300 Cascade takes lunch.
1300 J. Lamberts + T. Sager gets more pallets for banding drums.
1323 Cascade begins setting monuments for PL2-307B + PL2-307C
1325 J. Parsons (Boeing) onsite to band drums
1400 J. Parsons offsite.
US-2-44
1420 3 pallets (9 drums) transported to Gate B-42. For transport by Boeing to Bldg 2-44.
1440 J. Lamberts, J. Flaherty, K. Addis, T. Sager offsite to demobe.
1515 K. Addis, T. Sager offsite
1530 J. Lamberts, ~~E. Holliday go measure probes locations on East Marginal Way~~ offsite.

JSL
8/25/09

2-31DGI 8/26/09 013-1646-009.200.05

0720 J. Lamberts @ Boeing Plant 2 to sample 3 drums containing soil cuttings from PL2-507B + PL2-507C.
Sunny Warm ~~70~~ °C
0800 T. Norton onsite
Instructions - sample three drums out of the nine for all analytes sampled for soil sampling under DGI.
- use hand auger to sample from top, middle, + bottom of drum
0910 sample 2-31-Z900435
0915 2-31-Z900437
0920 2-31-Z900438.

Rebanded drums, put samples on ice
1010 J Lamberts offsite to lab ART.
1050 J. Lamberts back @ Plant 2
1120 J. Lamberts + K. Addis go to measure intersection for probes 2-31-DP-13 and 2-3-DP-14 on East Marginal Way.

29' DP-14 E from curb.
14 → sewer. 9ft 14 → sanitary
14 N → 13 56 ft 11ft to S (moved 14) after these measurements

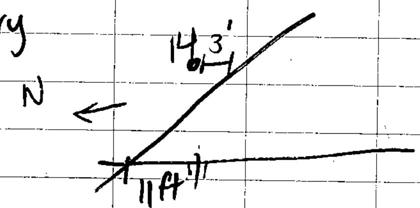
2-31 DGI 8/26/09 013-1646-009.200.05

13 to curb N end of 71'

13 to N white line 98'

13 S to water line'

sanitary



Map-coordinates go to CAD for final drawing

1145 - K. Addis, V. Lamberts finish measuring

1200 J. Lamberts offsite to Redmond office

jsl 8/26/09

2-31 DGI 013-1646-009.200.05

Monday, August 31, 2009

1345 Met at parking lot w/ L. & T. Sage

1400 Loaded truck w/ equipment from trailer

1430 Safety meeting with Josh Bernthal (EPI) Joe Flaherty (EPI) & Jackson (Cascade)
Discussed general safety, PPD employees, overhead slips trips & falls, Heat/cold stress, emergency #'s etc.

1440 Begin setup for DP drilling. at Hole # DP-33

1515 Begin push at DP-33

CAL PEAK 97.6

1410 Ferova spend to 100.
Battery dead had to charge for ~ 1 hr before calibration

Drillers push DP-33 to 14. & move to DP-32 at ~ 1735

1735 Set up on DP-32

Aug 31, 2009
Sample Times & ID (Soil only)
for
DP-33

#	2-31-DP-33-01-S-Ø 1528
1530	2-31-DP-33-04-S-Ø
1535	2-31-DP-33-09-S-Ø

DP-4

1526	2-31-DP-04-01-S-Ø
TIME	ID#
1630	2-31-DP-04-04-S-Ø
1635	S-31-DP-04-09-S-Ø

DP#32

Time	ID#
1743	2-31-DP-32-01-S-Ø
1745	2-31-DP-32-04-S-Ø
1748	2-31-DP-32-09-S-Ø

DP# 31

Time	ID#
1858	2-31-DP-31-01-S-Ø
1902	2-31-DP-31-04-S-Ø
1906	2-31-DP-31-09-S-Ø
1900	2-31-DP-31-01-S-4

2-31DGI 8/31/09 0131646-009.200.05

1740 START DP-32

1851 Start DP-31

1920 Resume DP-4 below 14ft
15-20ft No recovery

1915

Things to get:
- 2oz jars
- 4oz jars
- Sodium bisulf
- Lg (9-10) gloves
- Med (7-8) gloves
- visqueen
- Ice
- lg ziplocks

2045 DP4 Terminated at 45'
2130 Moved Drums of soil to soil storage area @ 48 Column in 2-44
2215 T. Sage walk to car.
2230 moved water (purge) to 2-49 Bldg to water treatment

2-31 DGI 8/31/2009 013-1646-009.200.05

2245 J. Bernthal Takes last water sample @ 2-31-DP-04-4$-W-$

2300 Drillers (Cascade pulls casing from DP-04.

J. Lamberts offsite

Jeff Lamberts 8/31/09

2-31 DGI 9/1/2009 013-1646-008.200.05

1315 J. Lamberts dropped samples off @ ARI

1315 T. Sager picked up supplies @ Grainger

1345 J. Lamberts + T. Sager onsite @ Plant 2

70°F and cloudy. Some rain showers

1400 Gather supplies
- bottles for water sampling of Redox parameters
- 2oz jars
- 4oz jars
- sodium bisulf vials
- lg ziplocks
- PID
- water level meter

1415 J. Bernthal (EPI), Cascade (Eli + Jackson onsite @ DP-03, DP-28, DP-37 and DP-39 to do Geoprobe work.

1430 Health + Safety meeting
- slips trips falls,
- PPE
- traffic
- hearing protection
- heavy equipment
- H+S audits
- exhaust
- heavy lifting
- hearing protection
- hard hats,
- overhead hazards
- vinyl chloride
- zone of exclusion
- air monitoring
- heat stress / stroke
- drums / waste

PID calibrated by M. Lampkin at site trailer 1432

(Cont.)
2-31 DGI Tues Mon, Sept 1, 09 TLS/JSL
1458 Start pics DP-3

~~Sample #~~ ~~Time~~

1 1507

15

16 1532 Start Push DP-28

T

16 PID Ambient ready ~5.0-5.2

16 1630 Ambient Air ready PID=0.0

TR 17 1635 Cascade mobed back to DP-33.

17

17 D 1658 Resume push at DP-28 14-20ft

TR

185

18 1810 Term DP-3 at ~45'

19

190 1950 Begin DP-06

2020 Ambient Air PID = 7.0

2-31 DGI 9/1/09 TS/JSL 013.1646.009.200.05

Samples

DP-3

Time	ID
1507	2-31-DP-03-01-S-0
1510	2-31-DP-03-04-S-0
1512	2-31-DP-03-04-S-4
1515	2-31-DP-03-09-S-0
DP-28	
1547	2-31-DP-28-01-S-0
1551	2-31-DP-28-04-S-0
1555	2-31-DP-28-09-S-0
DP-06	
1956	2-31-DP-06-01-S-0
1959	2-31-DP-06-04-S-0
2004	2-31-DP-06-09-S-0
DP-36	~~2-31-DP-0~~
2032	2-31-DP-36-01-S-0
2034	2-31-DP-36-04-S-0
2041	2-31-DP-36-09-S-0

For drilling @ DP-34, DP-36, DP-06, Joe Flaherty instructs Golder to keep things clean as it is within office spaces. Cascade lays plastic, sweeps, + mops area, vents exhaust.

TLS / jsl

2-31 DGI 9/1/09 013-1646-009.201.05

2135 Resume DP-06

Things to Get
- Alconox + Jug
- Paper Towels ✓
- Methanol Vials
- 4oz jars

2235 DP-06 Complete to 45ft bgs

2330 T. Sager + J. Lamberts off site

jsl 9/1/09

TLS / jsl

2-31 DGI 9/2/09 013-1646-009.200.05

1030 J. Lamberts @ Annex to have taillight repaired on truck

1100 J. Lamberts gets ice

1315 J. Lamberts on site @ Plant 2 for 2-31 DGI

Weather: sunny, some clouds ~70°F

1330 T. Sager onsite

1345 ARI onsite to pick up samples from 9/1/09 J. Bernthal releases custody

T. Sager + J. Lamberts gather supplies (see prev. page)
- + PID
- Tyvek (L)
- PCB bottles.

1345 Cascade onsite @ Bldg 2-31 to begin Geoprobe work @ DP-34, DP-37

1355 Health + Safety Mtg with Cascade, Joe Flaherty (Boeing) Josh Bernthal (IEDI) + Golder
- hydration
- slips trips falls
- hard hats
- breathing zone
- heavy lifting
- housekeeping
- PPE
- ear protection
- traffic safety
- heavy equipment
- drums / waste
- overhead hazards

JSL/TLS

2-31 DGI 9/2/2009 013-1646-009-200.05

1400 PID calibration Sea 0250 PID2020
- zeroed + spanned to 100ppm with isobutylene
- 89.2 ppm before spanning

1440 Start DP05 to 15 feet

1517 Start DP-34 to 15 feet

1625 Resume DP05 at 15 feet

1725 Stop at 45' DP-05 LPI set screen

1825 Start DP-11

2020 Resum DP-11 at 15'

2117 Term. DP11 at 45' bgs

9/2/09 2-31-DGI

Sample Record 013-1646-009-200.05

Time	Sample ID
1453	2-31-DP-05-01-S-0
1457	2-31-DP-05-04-S-0
1500	2-31-DP-05-09-S-0
1502	2-31-DP-05-09-S-4
DP-34	
1528	2-31-DP-34-01-S-0
1530	2-31-DP-34-04-S-0
~~1532~~	~~2-31-DP-34-04-S-4~~ TLS
1532	2-31-DP-34-04-S-4
1535	2-31-DP-34-09-S-0
DP-11	
Time	Sample ID TLS
1840	2-31-DP-~~10~~ 11-01-S-0
1843	2-31-DP-11-04-S-0
1844	2-31-DP-11-04-S-4
1849	2-31-DP-11-09-S-0
DP-48	
Time	Sample ID
~~1915~~	~~2-31-DP-11-0~~
1915	2-31-DP-48-01-S-0
1919	2-31-DP-48-04-S-0
1926	2-31-DP-48-09-S-0
2215	off Site

Slurry → PCB slurry (both)
(- PCB) - Waste Char profile
not reg. - VOCs
- SVOC RCRA
- pH - Total CN
- confirm weekly

Drum for concrete PCB cores
- Joe to get labels today

9/3/09 2-31-DGI 013-1646-009.20.05
met JSL onsite at 1340 (TMS)
Calibrate PID
1511 Call 811 Cloudy ~ 65°F
read 100

1554 DP-07 START

1519
DP-38 START

1605 resum DP-38. to push additional
2 feet as water production very slow due to
SILT & clayey silt below 11ft.

1635 Resum push of DP-07 at 15ft

921 Start DP-08

Cont.

9/3/04 - 2-31-DGI Ø13-1646-ØØ9.2ØØ
1942 START DP-24

2013 DP-24 push Xtra 2 feet from 15-17ft due to poor water recovery.

Sample List

DP-Ø7

Time	Sample ID
1513	2-31-DP-Ø7-Ø1-S-Ø
1516	2-31-DP-Ø7-Ø4-S-Ø
1520	2-31-DP-Ø7-Ø9-S-Ø

DP-38

Time	Sample ID
1539	2-31-DP-38-Ø1-S-Ø
1543	2-31-DP-38-Ø4-S-Ø
1547	2-31-DP-38-Ø9-S-Ø

DP-48

Time	Sample ID
1932	2-31-DP-48-Ø1-S-Ø
1934	2-31-DP-48-Ø4-S-Ø
1946	2-31-DP-48-Ø9-S-Ø

(Cont.)

Sample List (Cont.

DP-24

Time	Sample ID
2030	2-31-DP-24-Ø1-S-Ø
2031	2-31-DP-24-Ø4-S-Ø
2035	2-31-DP-24-Ø9-S-Ø

2200 T. Suger off site
2230 J. Lambert off site

Ø13-1646-ØØ9.2ØØ#5 AREA 2-31 DGE

Tuesday, September 8th 2009 Cloudy to Partly Cloudy ~70°F
JLS & JSL

1320 meet at parking lot & drive to Conex to collect equipment

1345 To DP-41 & DP-39 to begin setup.

1347 Cal PID Ambient/ready 2-3 prior to cal.
reads 100 w/gas on

1429 DP-47 Start Push

1445 DP-49 Start Push

1550 Recalibrate PID Ambient Air = 0.2
Recalibrated 0.0 Ambient Air reading

1605 Begin push of DP-29

1620 Stop push of DP-29 at 15'

1705 move Tables & down.

1725 Begin push of DP-37

1735 Stop DP-37 at 15'

1743 Begin push of DP-35

1818 resume DP-35 15-17 ft

1935 Begin push of DP-41

2024 Begin push of DP-43

2110 Finish Logging DP-43
Begin Cleanup of Staging area.

Sample collection Lost

DP-47

Time	Sample ID	PID
1439	2-31-DP-47-Ø1-5Ø	Ø.Ø
1442	2-31-DP-47-Ø1-5-4	Ø.Ø
1444	2-31-DP-49-Ø4-5-0	0.Ø

(Cont.)

List of needs Box 2oz ✓
Box 4oz
Box S NaBisulf ✓
Coolers ✓ Box methanol ✓
Buckets ✓ paper towels ✓
FILTERS ✓ Small ziplock ✓
PID – ✓
Bags – Box Hcl vials ✓
Hacksaw – Box PCB ✓
FILTERS
Box metals ✓
Syringes ✓

(Cont)
Sample collection List

DP-47

Time	Sample ID	PID=
1447	2-31-DP-47-09-S-0	0.0

DP-49

Time	Sample ID	
1518	2-31-DP-49-01-S-0	0.0
1520	2-31-DP-49-04-S-0	0.0
1532	2-31-DP-49-09-S-0	0.0

DP-29

Time	ID#	
1623	2-31-DP-29-01-S-0	0.0
1628	2-31-DP-29-04-S-0	0.0

DP-29 (Cont)

Time	ID#	
1640	2-31-29-09-S-0	0.0

DP-37

Sample ID#		
1748	2-31-37-01-S0	0.0
1751	2-31-37-04-S-0	0.0
1758	2-31-37-04-S-0	0.0

DP-35

Time	ID#	
1822	2-31-35-01-S-0	0.0
1824	2-31-35-04-S-0	0.0
1829	2-31-35-09-S-0	

DP-41

Time	ID#	
1949	2-31-DP-41-01-S-0	0.0
1951	2-31-DP-41-04-S-0	0.0
1955	2-31-DP-41-09-S-0	0.0

DP-43

Time	ID#	
2035	2-31-DP-43-01-S-0	0.0
2037	2-31-DP-43-04-S-0	0.0
2048	2-31-DP-43-09-S-0	0.0

T. Sager off site 1025
J. Lambets off site 1025

Ø13-1646-ØØ9.2ØØ.Ø5 2-31. DGI

Wednesday, Sept. 9, 2009

1130 To Grainger - Seattle - pickup 4ml plastic sheeting.

1200 onsite pickup van
load equipment into van.

1240 Jill Lamberts onsite

1300 MEET w/ Drillers
Safety meeting
Discussed Personal Safety (PPE)
Kill switch location
(Button & levers)

1318 Cal PID
read 105 cal'ed to 100. OK

1320 START push of DP-50

1332 Stop push of DP-50

1520 START push of DP-25

1530 Sampler stuck Stop DP-25

1552 Resume DP of DP-25
420m

1705 Start push of DP-
Bobcat Geoprobe

DP? 45, 44, 46 w/ 1 foot probes with 1" diameter steel rod no obstacles encountered.

1800 move to Atrium

1850 DP-45 Probe dugger foot of Soil

1905 DP-44
Did not log Sample 0-5'

1908 Stop hit concrete

Move to DP-46

1922 Start push for DP-46

1940 Recalibrate PID
Ambient Reading 405
Reads 100 OK

~~Lost couplings~~ plugs

Sept. 9, 09

- paper towels x 2 @ Grainger
- garbage bags @ Grainger

List
- XL gloves x 6 Grainger
- M gloves x 4 Grainger
- methanol vials
- Sodium bisulfate vials
- 4oz x 2
- 2oz x 1
- ear plugs

Sample List

DP-50

Time	Sample ID #	PID=
1355	2-31-DP-50-01-S-0	0.0
1357	2-31-DP-50-04-S-0	0.0
1406	2-31-DP-50-09-S-0	0.0

DP-25

Time	Sample ID #	
1720	2-31-DP-25-01-S-0	0.0
1728	2-31-DP-25-04-S-0	0.0
1742	2-31-DP-25-09-S-0	0.0

DP-26

Time	Sample ID #	
1552	2-31-DP-26-01-S-0	0.0
1554	2-31-DP-26-01-S-4	0.0

(Cont)

Sept. 9, 09

Sample List (Cont.)

DP-26

Time	Sample ID #	PID=
1600	2-31-DP-26-04-S-0	0.0
1615	2-31-DP-26-09-S-0	0.0

DP-45

Time	Sample ID #	
1908	2-31-DP-45-01-S-0	0.0
1917	2-31-DP-45-04-S-0	0.0
1922	2-31-DP-45-09-S-0	0.0

DP-46

Time	Sample ID #	
1956	2-31-DP-46-01-S-0	0.0
1958	2-31-DP-46-04-S-0	0.0
2007	2-31-DP-46-09-S-0	0.0

0

2140 T. Sager off site

2-31 DGI # 013-1646-009.200.05

Thursday, Sept 10, 2009 Partly Cloudy ~ 70°F

1030 T. Sager on site

1110 met w/ drillers / JOSH PCI & JOE (Boeing)

Walked proposed DP site to discuss access.

1214 Begin push of DP-22

1345 Begin push of DP-17

1400 Begin push of DP-16

1516 Begin push of DP-18

Sample List

		PID =
DP-22		
Time	Sample ID #	
1232	2-31-DP-22-01-S-00	0.0
1234	2-31-DP-22-04-S-00	0.0
1240	2-31-DP-22-09-S 00	0.0
DP-16		
Time	Sample ID #	
1456	2-31-DP-16-01-S00	0.0
1458	2-31-DP-16-04-S00	0.0
1512	2-31-DP-16-09-S-00	0.0
DP-17		
Time	Sample ID #	
1412	2-31-DP-17-01-S-00	0.0
1424	2-31-DP-17-04-S-00	0.0
1432	2-31-DP-17-09-S-00	0.0
	equipment Blank	
1540	2-31-DP-18-01-W-3	—
DP-18		
Time	Sample ID #	
1556	2-31-DP-18-01-S-00	0.0
1610	2-31-DP-18-04-S-00	0.0
1626	2-31-DP-18-09-S-00	0.0
1614	2-31-DP-18-04-S-4	0.0

Drum Samples

Time	Sample ID #	
	~~2-31-Z900519 - Liquids~~	Coring incomplete will sample later
	~~2-31-Z900519 - Solids~~	
1805	2-31-Z900518 - Liquids	
	~~2-31-Z900518 - Solids~~	
1815	2-31-Z900441	No Solid Phase

1910 TL Sager off site

DNL off Site

J# 013-1646-009.200.05

Friday, Sept. 11, 2009

Clear & sunny ~60°F

2-31 DGI

0630 T. Sager onsite

J. Lamberts dropping of sample from 9/10/09 at Laboratory

Josh B. with PCI has car trouble will be late this Am.

0700 met w/ drillers inside building 2-31 will start & setup as soon as Jill L. arrives on site

0708 Jill L. onsite

0725 cal PID

0730 START push of DP-12 to 15'

01-Time 0754

0835 to DP-10

0837 Start push of DP-10 to 15'

0849 PID Redone 1.2 Reread to 0.0

0850 Noticed that sample# 2-31-DP-09-5-0 4oz jar not sampled.

Lab called + instructed to submit 2oz jar for %Solids, Metals, + CN with Limited Volume

~~0902~~

0923 Resume DP-12 15-45ft

1023 DP-12 to 45'

1032 Move back to DP-10

1040 Resume DP-10 15-45'

1201 Completed logging DP-10

Decon Staging area.

1305 T. Sager off site

1335 J. Lamberts offsite

Sept 11/2009

Sample list:

DP-12

Time	ID.	PID=
0754	2-31-DP-12-01-S-0	0.0
0800	2-31-DP-12-04-S-0	0.0
0815	2-31-DP-12-09-S-0	0.0

DP-10

0912	2-31-DP-10-01-S-0	0.0
0914	2-31-DP-10-04-S-0	0.0
0928	2-31-DP-10-09-S-0	0.0

2-31 DGI 013-16446-009.288.85

Monday, Sept 14, 2009 Mostly clear to cloudy ~60+°F

0530 J. Lamberts & T. Sager on site

0550 To site trailer - pick up & calibrate PID, Pick up PPE. PID=100

0555 Set up staging area for the day.

0600 J. Bentrud onsite - informed us that drillers were running 40-50 minutes late due to flat tire.

0700 Drillers onsite Cloudy

0720 Drillers making & setting up on DP-08

0725 all sign in/gate safety sheets

0733 Start pilot DP-08 0-15'

0750 move to DP-09

0756 Start pilot DP-09 0-15'

0805 Log DP-09 at 15'

Sept. 14, 2009

0814 START Rig2 DP-42 @ 15'

0909 Drillers moved back to DP-08

0916 Resume push of DP-08 @ 15-45'

1015 Cascade done DP-08 to 45'

1033 DP-09 NO making sufficient water
Cascade resume push to ~~17ft~~ 20ft
Screen moved to 12-16ft.

1188 DP-09 - Resume push 20'-45

1247 DP-08 - 45'
Screen set at 44'-48'

1348 Decon staging station

1400 Dumped
5gal Bucket containg cement waste
from Sept 11, in Sdl waste Drum.
Contacting Jennifer Parsons w/ Boeing
to advise where the bucket should be
moved to.

Sept. 14, 2009

Sample data sheet

Time	Sample ID #	PID =
DP-08		
0745	2-31-DP-08-01-S-0	0.0
0748	2-31-DP-08-04-S-4	0.0
0749	2-31-DP-08-04-S-0	0.0
0800	2-31-DP-08-09-S-0	0.0
DP-09		
0827	2-31-DP-09-01-S-0	0.0
0829	2-31-DP-09-04-S-0	0.0
0834	2-31-DP-09-09-S-0	0.0
0836	2-31-DP-09-09-S-4	0.0
DP-42		
0901	2-31-DP-42-01-S0	0.0
0903	2-31-DP-42-04-S-0	0.0
0906	2-31-DP-42-09-S0	0.0

1420 T. Sager off site

1550 S. Lankes off site

Sept 15, 2009 — Overcast ~60°F

0430 - Bill Lambats & Ted Sayer onsite

0440 Calibrate PID
96.8 — Cal. to 100.

0510 0-4'

0513 4-5 refusal at 5 ft.

Sampled 4-5 ft
Logged Soil to 5 ft

0600 Set up for DP-30 & DP15 in tunnel.

Cores left in hole time was
need to find where to extract
Core

0630 Begin Push of DP-30

0647 DP-15

0715
Read PID read 100.
Ambient 0.0

0733 Recal PID
96.3 Zeroed

0833 Start Push of DP-27
to 16 ft

J. L. Spoke to Ted Norton at our office in Redmond WA, about refusal at 5 ft. on DP-44. Ted said he would like to attempt to re-sample further to the South. Golder will arrange to re-core at a new location

1005 Move to Staging area

1052 - Cascade Start DP-21

1115 Start DP-23

Sept. 15, 2009 overcast 70°

1253 to dump Soil in Drums in 2-44 Bldg

Sample Collection Log

DP-44

Time	Sample ID	PID	
0520	2-31-DP-44-01-5-0	0.0	HOLD
0522	2-31-DP-44-04-5-0	0.0	HOLD

DP-15

0701	2-31-DP-15-09-5-0	0.0

DP-30 ~~2-31-DP-30-09-5-0~~ ~~0.0~~

0638	2-31-DP-30-04-5-0	0.0

DP-27

0922	2-31-DP-27-01-5-0	0.0
0929	2-31-DP-27-04-5-0	0.0
0937	2-31-DP-27-09-5-0	0.0

DP-21

1100	2-31-DP-21-01-5-0	0.0
1104	2-31-DP-21-09-5-0	
1110	2-31-DP-21-09-5-0	

(Cont.) Sept. 15, 2009

DP-23

Time	Sample ID#	PID
~~2-31-DP-23~~		
1133	2-31-DP-23-01-5-0	0.0
1134	2-31-DP-23-04-5-0	0.0
1142	2-31-DP-23-09-5-0	0.0

Haz waste lables on waste drums.
Hold for characterization slurry drums
Added sample ID's and ~~sample~~
sample dates to soil drums
ALL Per Jennifer Parsons request.

1320 [illegible] Sayre off site

1410 J. Lambert off site

Ø13-1646-ØØ9.2ØØ.Ø5 ~65°F Partly cloudy

Wednesday, September 16, 2009

0630 T. Eager onsite

0645 Cal PID reads 101 cal'd to 100

0700 Kill switch on Oshwk D-25 Rig is on the left back side

~~0655 Cascade start push of DP-1~~

0706 Cascade start push of DP-1

0831 move staging area to DP-39

0855 Start DP-39

Ø900 Recal PID Ambient reading = 1.8
Reading 94.9
recal 100

1056 Resume DP-39 at 16 feet

1155 SCREEN SET at 44-48 ft

1230 Fred Wallace - Boring stopped by
1245 Fred Wallace left drilling area.

Cloudy / overcast 1200

Log of Daily Samples

Time	Sample ID #	PID Reading
DP-Ø1		
0728	2-31-DP-Ø1-Ø1-S-Ø	
0730	2-31-DP-Ø1-Ø1-S-4	
0737	2-31-DP-Ø1-Ø4-S-Ø	
0745	2-31-DP-Ø1-Ø9-S-Ø	
~~0912~~		
DP-39		
0912	2-31-DP-39-Ø1-S-Ø	
0924	2-31-DP-39-Ø4-S-Ø	
0937	2-31-DP-39-Ø9-S-Ø	
0939	2-31-DP-39-Ø9-S-4	

1335 Cascade preparing to resume push of DP-39 from 44'

1342 Begin Push of DP-39 from 44'

1420 Driller reported that 16' of rod was bent sampling between 48-52' if more rod is lost, will need to terminate boring.

1425 T. Norton, of Golder - onsite

Sept. 16, 2009 TLS/JSL

overcast ~70°F

1430 52-56' difficult push. T. Morgan requested originals of drill & DP- logs be filed & copies made asap.

1500 Drillers unable to advance past 56' They lost ~40' of sampler machine

1525 J. Barnhart (URS) off site to take Soil & water samples to the lab.

1530 J. Lambots taking soil cuttings to holding Drum in Bld 2.44

1545 Drillers cleaning up DP-39 ~~Boring~~ PP backfilled with bentonite chips - Chips hydrated with water off of drillers truck

1600 Jim Lambots off site

1602 Cascade patched Concrete pavement with rapid set cement.

1610 Drillers off to dump decon water

1625 T. Sager begin walk off site

1635 off site to car. (T. Sager)

~~1700 Ted Sager off site to office~~ ~~to request to obtain new PID meter~~

~~1216 Drillers Move to DP-02 & push to 15 ft bgs to collect soil + GW sample~~

JSL

Plant 2. 2-31 DGI Φ13-1646-ΦΦ9.2ΦΦ.05

Thursday Sept 17, 2009 ~60°F Clear

ΦΦ3Φ T. Sager & J. Lamberts onsite met D. Bernhard EPI

ΦΦ45 set up staging area

Φ7Φ6 Cal pid
Amb. reading 0.9
Zero
99.9. 99.1
CAL to 100

Φ72Φ Cascade setting up on DP-39 to re-position at core ~10" S of yesterdays location

Φ73Φ Cascade using LA Rig 7730DT two drill switches one on left side of operators control panel and red cord to left of rig mast. Pull the cord and it will kill the rig engine. Signed Daily Health & Safety Plan

Φ751 Begin push at DP-39 using 5ft Sampler

Sept 17, 2009

ΦΦ15 Resume sample collection at 55ft with 5 foot sample intervals

ΦΦ25 PID MALFunctioning J. L. Attempts to fix PID. Saving Soil Samples in Plastic Baggies for later analysis

Φ93Φ Hit what appears to be MARINE Silt Aquitard at 70-74' Sample becomes very dense at 74' with increasing shell fragments below 72.5 feet

EPI to set Screen.

(ΦΦΦ Jim Pender - Cascade Drilling on site Fred Wallace & Joe Flaherty Boeing arrive to check on work Go to EPI.

1ΦΦ5 Jim Pender (Cascade) Fred Wallace & Joe Flaherty, left drilling area.

1100 Ted Sager offsite to go to Redmond to obtain new PID meter

Sept. 7, 2009

1216 Drillers Move to DP-02 to push to 15' bgs to collect soil + GW sample

1218 Complete to 5ft bgs

1227 No recovery from 5-15ft bgs. Instructed drillers to move over + retry hole. Free product noted on insides of probe tubing. TPH/odor noted.

1228 Drillers start to drill @ DP-02 to 15' at location to S of original location. No recovery again past 5'

1246 Trying again @ DP-02

1247 T. Sage back on site

1307 Cal New PID
Reads 0.0
Cell to 100

DP-02
ATTP 1
0-5 2.5f Rec.
5-10 1ft rec
10-15 0 oil splatter on inside of plastic liner

Sept. 17, 2009

DP-02
ATTP-2
0-5 2.5 Rec.
5-10 1ft Rec.
10-15 2" peagravel oil splatter TPH odor Sheen test positive

ATTP-3
0-5 - 2.5' Recov.
5-10 No Recovery
10-15 1.5' of peagravel Sheen test positive TPH odor free product visible

Likely tank previously in area. No soil sample taken due to low recovery, not enough volume to collect for all parameters, texture mostly gravel + pea gravel (which cannot be used for analysis); free product detected, + smelled @ 10-15' depth, positive sheen test.
Plan is to have DP-02 relocated, and attempt again next Thurs, Sept 24, 2009

Sept. 17, 2009

SOIL Description of DP-02

Attempt #1

0-0.3 Asphalt

0.3-5' 2.5ft of Recovery, loose medium yellow-brown, unstratified, Silty f-C SAND & PEA GRAVEL, damp, No odor No sheen PID=10.4, however PID reading rose slowly and was likely caused by moisture content of the sample. Most likely false positive readings (FILL)

5'-10' - 1ft of Recovery, loose, Medium yellow-brown, unstratified, Silty, f-C SAND & PEA GRAVEL, damp No odor, No sheen PID=20.8 again reading rose slowly, and was likely caused by moisture vapor from sample and not likely a positive reading.

10'-15 No recovery OIL splatter noted in bottom of sample sleeve.

Sept. 17 2009

Attempt #2

0-0.3 Asphalt

0.3-5' - 2.5 feet of recovery
Loose, medium yellow-brown, unstratified, Silty, f-C SAND & PEA GRAVEL, damp
NO ODOR, NO SHEEN, PID= 0.0
(FILL)

5'-10' - 1ft of recovery
loose, medium yellow-brown, unstratified, Silty, f-C SAND, & PEA GRAVEL
damp, No odor, No sheen, PID= 0.0
(FILL)

~~5~~ 10'-15' 2" of recovery Loose, gray UNSTRATIFIED, PEA GRAVEL, trace sand, trace silt, TPH ODOR, sheen visible, PID=0.0
FILL

Sheen test performed on all samples of soil retrieved at all three location attempts.

BJ.

DP-Ø2 Sept. 17, 2ØØ9
Attempt # 3
Ø - Ø.3 ft Asphalt

Ø.3ft - 5ft 2.5ft of Recovery
Loose, medium yellow brown, unstrat., silty, f-c SAND & PEA GRAVEL, damp, No odor, No sheen, PID=0.0
(FILL)

5ft - 1Øft No Recovery ~~only trace amount of f. SAND w/oil splattered sheen on sampler~~ TLS

1Øft - 15ft 1.5ft of recovery
Loose, gray, unstratified, pea gravel trace f-m sand, trace silt, TPH odor, visible sheen & oil on sample.
PID=0.0
FILL

1515 Pump off cutting waste at designated disposal drums.

1535 T. Sager J. Lamberts off site

Ø13-1646-ØØ9.2ØØ.Ø5
Monday, Sept. 21, 2ØØ9
Plant 2 2-31-DGI

Ø43Ø J. Lamberts onsite
Ø44Ø T. Sager onsite
Ø45Ø Cal 124 PID Peak=124
Ø455 Signed daily Health & Safety addendum including today work in and adjacent to public roadways.

Ø514 Begin 3rd attempt of ~~Dep~~ DP-44
Drillers successfully pushed to 15' bgs with the LA 773ØDT Rig.
Sample collected & logged

Ø525 Driller off DP-44 and mobe to Next location

OAT - Continued logging of ~~DP-44~~ soil.

Ø545 Recal PID Peak 75 called to 100

Sept 21, 2009 (Cont.)

0600 GAI moving soil collection & logging station to North corner of site

DP-20

0620 Cascade had drilled DP-20 to 15'. GAI waiting for Security to open gate on N. Corner of site when we will set up for the rest of the day.

0644 Driller brought over samples from DP-20

Logged Soil.

0712 DP-19 Start push
DP-19 end at 4 ft bgs hole at due to pea gravel Fill. Gravel raveled in on itself.

Samples collected from 0-5' sleeve and put on hold. Will attempt to redrill hole at later date. Logged Soil recovered will not count log if hole re-drilled attempt is successful.

Sept 21, 2009 (cont)

0721 Decon PID MAX Ready 108

All equipment decon with Alconox between DP-Locations & Sample collection.

0915 Traffic control Services will not be out until 11PM (scheduling problem)
2-31-DP-13 & 2-31-DP-14 cannot be drilled until TCS has set-up planned traffic control plan.

Soil Sample List

2-31-DP-44

Time	ID#	PID =
0528	2-31-DP-44-01-5-0	0.0
0530	2-31-DP-44-04-5-0	0.0
0535	2-31-DP-44-09-5-0	0.0

~~DP-20 2-31-PP-20-01-5-0~~

DP-20

0708	2-31-DP-20-01-5-0	0.0
0711	2-31-DP-20-01-5-4	0.0
0709	2-31-DP-20-04-5-0	0.0
0725	2-31-DP-20-09-5-0	0.0

Sept. 21, 2009

1127 TCS called Sara they would be to site in about ½ hour.

1226 TCS observed setting up traffic control north of 16th Ave.

1250 NW Concrete cutting coring road way at 2-31-DP-13 location

0-0.4 Asphalt
0.4-1.0 Concrete
1.0-1.6 Concrete

1308 Cascade moving to DP-13

1310 NW CC coring DP-14
0-0.5 Asphalt
0.5-1.1ft concrete
1.1ft-1.65ft concrete

1313 Cascade begin push at DP-13

1331 Cascade begin push at DP-14

Log & sample DP-13 & DP-14

Sept. 21 2009

1500 Cleanup - Soil Stagging are (decon)

Soil Sample ID List

DP-19

Time	Sample ID#	PID=	
0748	2-31-DP-19-01-S-0	0.0	Hold
0750	2-31-DP-19-04-S-0	0.0	Hold

DP-13

1334	2-31-DP-13-01-S-0	
1336	~~2-31-DP-13~~ 2-31-DP-13-01-S-4	
1337	2-31-DP-13-04-S-0	
1342	2-31-DP-13-09-S-0	

DP-14

1412	2-31-DP-14-01-S0	
1414	2-31-DP-14-04-S-0	
1422	2-31-DP-14-09-S-0	

1400 J Lamberts + T. Sager offsite

2-31 DGI 9/22/2009 013-1646-009.200.05

0900 J. Lamberts on site to sample soil drum Z900446.
Weather: warm, sunny 70°C
Health + Safety: touched base with Mike L., will call him before leaving to ensure that all went well + safely while working alone.

0930 Gathered equipment, bottles, labels, + Chain of custody

1000 Picked up new soil drum for soil cuttings from 9/21/2009. Z900447.

1030 Collected sample 2-31-Z900446 from drum
1 Labelled drum
Collected for VOCs, Metals, Total Cyanide, PCBs, TPH-Gx, TPH-Dx, SVOCs, Sim PAHs, % Solids.

1130 J. Lamberts offsite. M. Lumpkin contacted

1st 9/22/09

0609 Cloudy 013-1646-009.200.05
2-31 ~ DGI Sept 24, 2009

0630 T. Sager & J. Lamberts onsite
0640 pick-up equipment.

0705 Cal. PID peak = 190 cal + 1pp OK

0715 Set-up for re-drill (2nd attempt of 2-31-DP-19 ~ 15' SW of 1st Location

0727 Begin push of DP-19 2nd attempt

0739 Stop push pea gravel encountered at ~ 5-6 ft pushed to 10 feet hole abandoned and moved into planter ~ 8 ft to the west.

0744 DP-19 3rd attempt Successful to 15 ft
Soils Logged Samples taken

0832 PID MALFunctioning
Jill L. attempting to recalibrate

Moving to next location

~~0854 Call Todd Morris at~~ annex

0920 J. Lamberts off site to lab in Tukwila to pick up additional sample bottles

0935 START Push of DP-02 4th Attempt

2ft Recovery for 1st 5ft
~ 3" recovery 5-10ft
- Medium olive brown silty f-c SAND, little f-M gravel, damp.

Called Todd about PID he said should calibrate & reset with new tank of cal. GAS.

DP-02 New location 5th Attempt

- ~3ft recovery 0-5ft
~2ft recovery 5-10ft
peagravel at two areas ...

Appears to be sleen at 12 ft

1055 Recal PID Read (0) cal to 100 Zeroed

1100 Resume DP-02 15'

1230 Completed Logging DP-02 to 45' PID Readings on DP-19 & DP-02 Soil 0.0
Begin clean up of soil sampling & logging area.

Drop off soil into drums

Soil Sample ID List

DP-19	Sample ID#	PID
0752	2-31-DP-19-01-S-0	0.0
0754	2-31-DP-19-04-S-0	0.0
0759	2-31-DP-19-09-S-0	0.0
DP-02 1005	2-31-DP-02-01-S-0	0.0
1007	2-31-DP-02-04-S-0	0.0
1018	2-31-DP-02-09-S-0	0.0

1340 T Sager offsite

9/28/09 Boring 2-31 DG1 013-1646-009.200.05

0700 J. Lamberts onsite to sample waste drums for soil + concrete slurry.
Weather - clear, 50F,
Health + Safety - drum sampling, pinch points, chemical hazards

0730 Prepare equipment, bottles,

0755 Collect soil sample from drum 2900447
Sample ID: 2-31-2900447
parameters: VOCs, Metals, CN, SVOCs, Sim PAHs, NW TPH-G, NW TPH-Dx, PCBs, % Solids

0811 Collect liquid fraction concrete slurry sample from drum 2900519
sample ID: 2-31-2900519-Liquids
parameters: VOCs, RCRA Metals, Total Cn, pH

0825 Collect solid fraction concrete slurry sample from drum 2900519
Sample ID: 2-31-2900519-Solids
parameters: VOCs, RCRA Metals, Total CN, pH, % Solids.

0900 Band + palletize remaining drums. Notify J. Flaherty + J. Parsons.

1000 Clean up, J. Lamberts offsite to lab.

Left Columbia Basin onsite location

Drum Log

DRum ID#	Date Started	Location	Contents	Banded?	In 2-44?	Sampled?	Sample ID.
Z900447	9/21/2009	DP-19, DP-20 DP-13, DP-14 DP-44, DP-02	Soil Cuttings-dry	Y	Y	9/28/09	2-31-Z900447 @755

Drum Log

Drum ID#	Date Started	Location	Contents	Banded?	Moved to 244	Sampled?
Z900432	8/24/09	PL2-507C	Soil-dry. cuttings	Y	Y	Grouped w/ Z00435,36,37
Z900433	8/24/09	PL2-507C	Soil cuttings-wet			
Z900434	8/24/09	PL2-507C	Soil cuttings-wet			
Z900435	8/24/09	PL2-507C	Soil Cuttings-wet			8/26/09 Y 2-31-Z900435
Z900436	8/24/09	PL2-507C	Soil Cuttings-wet			8/26/09 Y 2-31-Z900436
Z900437	8/24/09	PL2-507C	Soil Cuttings-wet			8/26/09 Y 2-31-Z900437
	8/25/09	PL2-507B				Grouped w/ Z00435,36,37
Z900438	8/25/09	PL2-507B	Soil Cuttings-wet			
Z900439	8/25/09	PL2-507B	Soil Cuttings-wet			
Z900440	8/25/09	PL2-507B	Soil Cuttings-wet			
Z900441	8/31/09	DP-35 ✓	Soil Cuttings-dry	Y	Y	2-31-Z900441
DP-06✓ DP-03✓ DP-07✓ DP-31✓ DP-05✓ DP-34✓ DP-48✓						9/10/09 @1813
DP-36✓ DP-28✓ DP-47✓ DP-32✓ DP-40✓						
DP-04✓ DP-11✓ DP-24✓ DP-38✓						
DP-49✓ DP-29✓ DP-37✓ DP-35✓ DP-41✓ DP-43✓ DP-45✓						
DP-46✓ DP-25✓ DP-26✓ DP-50✓						
						@811 2-31-Z900519-Liquids
Z900519	~~8/27/09~~	2-31	Concrete Slurry 2-31	Y	Y	9/28/09 2-31-Z900519 - Solids @825
Z900518	~~8/27/09~~	2-31	Concrete Slurry PCBs 2-31	Y	Y	9/10/09 2-31-Z900518-Liquids @1805
Z900445	~~9/3/09~~ 8/27/09 jsl.	2-31	PCB Concrete Cores 2-31	Y	Y	N/A.
Z900446	9/10/09	OP-22✓ DP-16✓ DP-17✓	Soil Cutting-dry	Y	Y	Y 9/22/09 2-31-Z900446
DP-21✓ DP-39✓ DP-18✓ DP-10✓ DP-12✓						
DP-23✓ DP-01✓ DP-08✓ DP-09✓ DP-42✓						
DP-27✓ DP-44✓ DP-02✓ ~~DP-19 DP-20~~						
DP-15✓ ~~DP-13 DP-14~~						
DP-30✓						

"Rite in the Rain"®
ALL-WEATHER
LEVEL
No. 310

Boeing Plant 2

2-31 Data Gaps

013-1646-009.200

10/1/2009 2-31 Data Gaps 013-1646-009.200.05

0645 J. Lamberts (Golder on site)
55°F cloudy
To perform GW sampling as part of 2-31 06.I.
Gather up equipment, bottles, etc
0705 J. Bernthal (EPI) on site
0715 K. Addis (EPI) on site
0730 Setup at PL2-502A to collect water sample
0842 Take sample 2-31-PL2-502A-W-0
0900 Health + Safety mtg - eye protection, PPE, gloves, slips trips falls, heavy lifting.
1200 Move to PL2-503A to collect water sample
1254 Take water sample 2-31-PL2-503A-W-0
1410 COC signed from K. Addis to J. Lamberts
1430 K. Addis + J. Bernthal offsite
1430 J. Lamberts offsite to ARI lab.

JSL 10/1/09

10/2/09 2-31 Data Gaps Investigation 013-1646.009-200.05

0650 J. Lamberts (Golder) onsite
53°F Overcast
To perform GW sampling as part of 2-31 DGI

0700 Gather up equipment, bottles, etc
K. Addis (EPI) onsite

0705 Move to PL2-501A, to collect water sample

0730 H+S Meeting: slips trips falls, traffic safety, PPE, gloves, eye protection, heavy lifting.

0910 Collect sample 2-31-PL2-501A-W-0

1000 Move to PL2-501B, to collect water sample

1032 Collect sample 2-31-PL2-501B-W-0

1150 Move to PL2-501C to collect water sample

1245 Collect sample 2-31-PL2-501C-W-0

1400 COC signed from K. Addis to J. Lamberts.

1410 J Lamberts offsite to lab

1430 K Addis offsite

1430 J Lamberts onsite to clean up equipment

1500 J. Lamberts offsite

10/5/09 2-31 DGI 013-1646.009.200.05

0650 J. Lamberts (Golder) onsite
53°F clear.
To perform GW sampling as part of 2-31 DGI

0700 Gather up equipment, bottles, etc.
K. Addis (EPI) onsite, J. Bernthal (EPI) onsite.

0710 H+S mtg: slips trips falls, PPE) gloves, eye protection, heavy lifting
Move to PL2-509A + PL2-509B to collect water sample.

0839 Collect sample 2-31-PL2-509A-W-0

0850 Collect sample 2-31-PL2-509A-W-1

1043 Collect sample 2-31-PL2-509B-W-0
VOCs-no preservation

1120 Move to PL2-504A to collect water sample

1150 Collect sample 2-31-PL2-504A-W-0

1300 Move to PL2-505A to collect water sample.

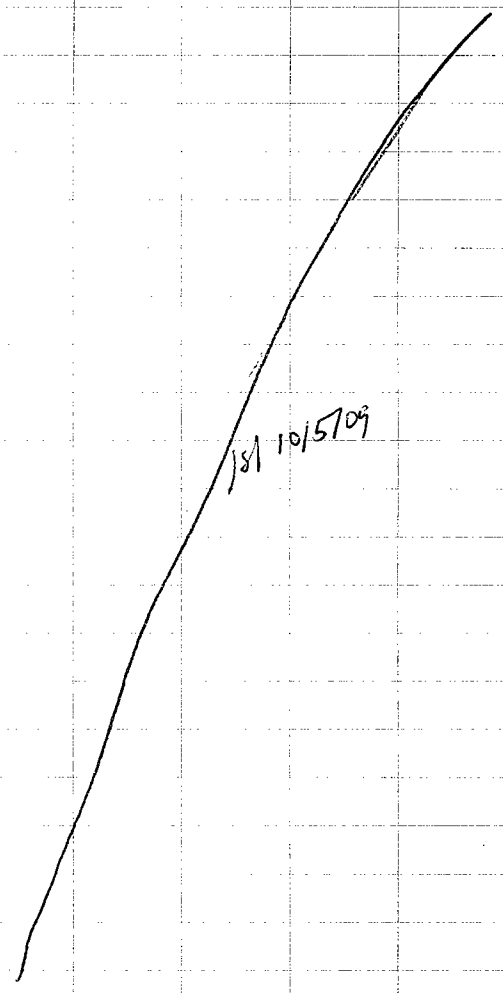
1330 Collect sample 2-31-PL2-505A-W-0

1345 Collect sample 2-31-PL2-505A-W-1

1420 COC signed over to J. Lamberts from K. Addis

10/5/09 2-31 DGI 013-1646-009.200.05

1430 J.Lamberts offsite to lab.
K.Addis, J.Bernthal offsite



10/6/09 2-31 DGI 013-1646-009.200.05

0640 J.Lamberts (GWI) onsite
Weather: 55F + clear
to perform GW sampling as part of 2-31 DGI.

0645 Gather equipment, bottles etc
K.Addis, J.Bernthal EPI onsite
Move to PL2-233A, to collect water sample.

0700 H+S mtg: slipstrips falls, chemical safety, PPE, gloves, eye protection, heavy lifting, traffic safety

1035 Collect sample 2-31-PL2-233A-W-0

1100 Collect sample 2-31-PL2-233A-W-1

1200 Move to PL2-507B to collect sample

Btwn 8-10: K Addis offsite to get new parameter meter from PL.

1300 Collect sample 2-31-PL2-507B-W-0

1315 Collect sample 2-31-PL2-507B-W-1

1420 Move to PL2-507A to collect sample

1451 Collect sample 2-31-PL2-507A-W-0

1500 Collect sample 2-31-PL2-507A-W-1

10/6/09 2-31 DGI 013-1646-009-200-05

1612 K. Addis signs COC over to J. Lambert

1015 J. Lambert off site to lab

1630 K. Addis + J. Bernthal off site

1645 J. Lambert back onsite to clean up

SIGNATURE PAGE

I have read this Health and Safety Plan and understand its contents. I agree to abide by its provisions and will immediately notify the Site Health and Safety Officer (Josh Bernthal, (425) 241-5400), or designated alternate if site conditions or hazards not specifically designated herein are encountered.

Name (Print)	Signature	Date	Company/Affiliation
Kristin Addis	Kristin J. Addis	8/24/09	EPI
Doug Kunkel	Doug Kunkel	8/24/09	EPI
Ted Norton		8/24/09	GAI
Kerry Lamphere		8-24-09	COI
Andy Hagan		8-24-09	COI
Jeremiah Jenkins		8-24-09	COI
Ted L. Sager		8-24-09	Golder
Jill Lamberts		8-24-09	Golder
Michael Lamphiar		8-24-09	Golder
Joe Flaherty		8-24-09	Boeing
Eric Holliday		8-24-09	GAI
Josh Bernthal		8/31/09	EPI
Jill Lamberts		8/31/09	GAI
Ted Sager		8/31/09	Golder
Jackson Ko		8-31-09	CASCADE
Elijah Floyd		8-31-09	cascade
Joe Flaherty		8-31-09	Boeing
Joe Flaherty		9-1-09	Boeing
Jackson Ko		9-1-09	CO
Elijah Floyd		9-1-09	COI
Ted Sager		9-1-09	Golder
Jill Lamberts		9-1-09	GAI
Josh Bernthal		9-1-09	EPI
Jill Lamberts		9-2-09	Golder

Attachment 2 Health & Safety Plan for
[illegible]
Boeing Plant 2, Seattle Tukwila, Washington
April 2009

SIGNATURE PAGE

I have read the Health and Safety Plan and understand its contents. I agree [illegible] and will immediately notify the Site Health and Safety Officer (Josh Bentley) or designated alternate if site conditions or hazards not specifically designated he[illegible]

Name (Print)	Signature	Date	Company/Affiliation
Steve Stivers		8-25-09	CDT
Kevry Lamphere		8-25-09	CDI
Andy Flagan		8-25-09	CDI
Jill Lamberts		8-25-09	Golder
Ted Sager		8-25-09	Golder
Kristin Addis		8-25-09	EPI
JACKSON KEY		8-2-09	CDI
Josh Bentley		9/2/09	EPI
Joe Flaherty		9/2/09	Boeing
Ted L. Sager		9/2/09	Golder
Elijah Floyd	Elijah Floyd	9/2/09	CDI
Jill Lamberts		9/3/09	GAI
Josh Bentley		9/3/09	EPI
Ted Sager		9/3/09	Golder
Elijah Floyd	Elijah Floyd	9/3/09	CDI
JACKSON KEY		9-3-09	CDI
Joe Flaherty		9-3-09	Boeing
Kristin Addis		9-8-09	EPI
Kasey Gehl		9-8-09	CDI
Lynn Goble		9-8-09	CDI
JACKSON KEY		9-8-09	CDI
JACKSON KEY		9-9-09	CDI
Jill Lamberts		9-8-09	GAI
Jill Lamberts		9-9-09	GAI

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Name (Print)	Signature	Date	Company/Affiliation
Kristin Addis	Kristin L Addis	8/27/09	EPI
Garret Harrington		8/27/09	NW Concrete cutting
Elijah Floyd	Elijah Floyd	9/8/09 / 9/9/09	
Ted Sager		9/8/09	
Ted Sager		9/9/09	
Joe Flaherty		9/8/09	Boeing
Joe Flaherty		9/9/09	Boeing
Josh Bernthal		9/8/09	EPI
Josh Bernthal		9/9/09	EPI
Jill Lambert		9/10/09	GAI
Jill Lambert		9/11/09	GAI
Ted Sager		9/10/09	GAI
Ted Sager		9/11/09	GAI
Josh Bernthal		9/10/09	EPI
Josh Bernthal		9/11/09	EPI
JACKSON KAI		9-10-09	CDI
JACKSON KAI		9-11-09	CDI
Elijah Floyd	Elijah Floyd	9-11-09	CDI
Jill Lambert	Jill Lambert	9-14-09	GAI
Josh Bernthal		9-14-09	EPI
Ted Sager		9-14-09	GAI
Elijah Floyd	Elijah Floyd	9-14-09	CDI
JACKSON KAI		9/10/09	CDI
Jill Lambert	Jill Lambert	9/15/09	GAI

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Name (Print)	Signature	Date	Company/Affiliation
Ted SAGER		9/15/09	GAI
JACKSON KEY		9-15-09	CASCADE
Elijah Floyd		9/15-09	CDI
Jennifer Parsons		9-15-09	BOEING
Josh Bernthal		9.15.09	EPI
Jill Lamberts		9-16-09	GAI
Ted Sager		9-16-09	GAI
Josh Bernthal		9/16/09	EPI
Jackson Key		9/16/09	CDI Inc
Elijah Floyd		9/16/09	CDI
Ted Sager		9/17/09	GAI
J. Lamberts		9/17/09	GAI
Josh Bernthal		9/17/09	EPI
[illegible]		9-17-09	CDI

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Name (Print)	Signature	Date	Company/Affiliation
Jill Lambertz	Jill Lambertz	9/21/09	GAI
Kristin Addis	Kristin J. Addis	9/21/09	EPI
Ted Sager	Ted Sager	9/21/09	GAI
Josh Bernthal	Josh Bernthal	9/21/09	EPI
Joe Flaherty	Joe Flaherty	9/21/09	Boeing
JACKSON KYX	JACKSON KYX	9-21-09	CDI
Elijah Floyd	Elijah Floyd	9-21-09	CDI

2-31 Data Gaps Investigation
Boeing Plant 2

013-1646-009.200.05

Sample ID	Sample Date	Time	Media [1]	Depth Interval (ft bgs)[2]	QA/QC Sample[3]	Samplers Initials	Analyses	Comment
TripBlank	8/24/09	–	DI	–	TB	JSl	VOC, TPH-G	2-31DGI
2-31-PL2-507C-01-W-3	"	1050	DI	–	EB	JSl	VOC, Metals, CN, SVOC, SIMPAH, PCBs, TPH-G, TPH-D	"
2-31-PL2-507C-01-S-0	"	1517	S	~~0-1~~ 0-2	–	JSl	VOCs, Metals, CN, SVOCs SIMPAH, PCBs, %Solids	"
2-31-PL2-507C-04-S-0	"	1127	S	4-5	–	JSl	"	"
2-31-PL2-507C-09-S-0	"	1137	S	9-10	–	JSl	"	"
Trip Blank	8/25/09	–	DI	–	TB	JSl	VOCs	"
2-31-PL2-507B-01-S-0	"	0948	S	~~0-1~~ 0-2	–	JSl	VOC, Metals, CN, SVOCs SIMPAH, PCBs, %Solids	"
2-31-PL2-507B-04-S-0	"	0954	S	4-5	–	JSl	"	"
2-31-PL2-507B-09-S-0	"	1001	S	9-10	–	JSl	"	"
2-31-Z90435	8/26/09	0910	S	–	–	JS/TN	VOCs, Metals, CN, SVOCs, SIMPAH, PCBs, %Solids	Waste char.
2-31-Z90436	"	0920	S	–	–	JS/TN	"	"
2-31-Z90437	"	0915	S	–	–	JS/TN	"	"

1 - Soil, GW, DI
2 - Soil sample depth interval, or borehole screen interval
3 - EB, TB, Dup, Co-locate, MS/MSD

2-31 Data Gaps Investigation
Boeing Plant 2

013-1646-009.200.05

Sample ID	Sample Date	Time	Media [1]	Depth Interval (ft bgs)[2]	QA/QC Sample[3]	Samplers Initials	Analyses	Comment
Trip Blank	8/26/09	–	DI	–	TB	JSl	VOCs	Waste Char
Trip Blank	8/31/09	–	DI	–	TB	JSl	VOCs	2-31 DGI
2-31-DP-33-01-S-0	"	1526	S	0-1	–	JSl/TS	VOCs, Metals, %Solids	"
2-31-DP-33-04-S-0	"	1530	S	4-5	–	JSl/TS	"	"
2-31-DP-33-09-S-0	"	1535	S	9-10	–	JSl/TS	"	"
2-31-DP-04-01-S-0	8/31/09	1626	S	0-1	–	JSl/TS	VOCs, Metals, Cyanide, %Solids	"
2-31-DP-04-04-S-0	"	1630	S	4-5	MS/MSD on VOCs	"	"	"
2-31-DP-04-09-S-0	"	1635	S	9-10	"	"	"	"
2-31-DP-32-01-S-0	8/31/09	1743	S	0-1	–	"	VOCs Metals %Solids	"
2-31-DP-32-04-S-0	"	1745	S	4-5	–	"	"	"
2-31-DP-32-09-S-0	"	1748	S	9-10	"	"	"	"
2-31-DP-33-10-W-0	8/31/09	1716	GW	10-14	–	JB	VOCs, dissMetals, diss LHg	2-31 DGI

1 - Soil, GW, DI
2 - Soil sample depth interval, or borehole screen interval
3 - EB, TB, Dup, Co-locate, MS/MSD

Sample ID	Sample Date	Time	Media [1]	Depth Interval (ft bgs)[2]	QA/QC Sample[3]	Samplers Initials	Analyses	Comment
2-31-DP-33-10-W-1	8/31/2009	1740	GW	10-14	dup field	JB	VOCs diss Metals diss LLHg	PDG-2-31-DGI
2-31-DP-04-10-W-0	8/31/2009	1820	GW	10-14	—	JB	VOCs diss metals, diss LLHg, Total+CN WAD	
2-31-DP-32-10-W-0	"	1920	GW	10-14	—	JB	VOCs, diss Metals, diss LLHg	
2-31-DP-31-10-W-0	"	2020	GW	10-14	—	JB	VOCs, diss metals, diss LLHg, PCBs	
2-31-DP-04-40-W-0	"	2245	GW	40-44	—	JB	VOCs, diss Metals, diss LLHg, Total+WADCN	
Trip Blank	"	—	DI	—	TB	JB	VOCs	
2-31-DP-31-01-S-0	"	1858	S	0-1	—	JS/TS	VOCs, metals PCBS %Solids	
2-31-DP-31-04-S-0	"	1902	S	4-5	—	"	"	
2-31-DP-31-09-S-0	"	1906	S	9-10	—	"	"	
2-31-DP-31-01-S-4	"	1900	S	0-1	co locate	"	VOCs, %Solids	
Trip Blank	9/1/09	—	DI	—	TB	—	VOCs	
2-31-DP-03-01-S-0	"	1507	S	0-1	—	TS/JS	VOCs, metals, CN, %Solids	

1 - Soil, GW, DI
2 - Soil sample depth interval, or borehole screen interval
3 - EB, TB, Dup, Co-locate, MS/MSD

2-31 Data Gaps Investigation
Boeing Plant 2

013-1646-009.200.05

Sample ID	Sample Date	Time	Media [1]	Depth Interval (ft bgs)[2]	QA/QC Sample[3]	Samplers Initials	Analyses	Comment
2-31-DP-03-04-S-0	9/1/09	1510	S	4-5 ~~0-4~~	–	JS/TS	VOCs metals CN % Solids	2-31 DGI
2-31-DP-03-04-S-4		1512		4-5	Co located		VOCs % Solids	
2-31-DP-03-09-S-0		1515		9-10	–		VOCs Metals CN % Solids	
2-31-DP-28-01-S-0		1547		0-1	–		VOCs Metals CN PCBs % Solids	
2-31-DP-28-04-S-0		1551		4-5	MS/MSD for metals			
2-31-DP-28-09-S-0		1555		9-10	–			
2-31-DP-03-10-W-0		1615	GW	10-14	–	JB	VOCs, Diss metals, Diss LL Hg, Total+WAD CN	
Trip Blank		–	DI	–	–		VOCs	
2-31-DP-28-10-W-0		1730	GW	10-14	–		VOCs, Diss Metals+LL Hg, total+WAD CN, PCBs	
2-31-DP-03-40-W-0		1900		40-44	–		VOCs, Diss metals, LL Hg Tot+WAD CN	
2-31-DP-06-10-W-0		2100	GW	10-14	–	JB	VOCs, Diss Metals, LL Hg Tot+WAD CN	
2-31-DP-36-10-W-0	9/11/09	2230	GW	10-14	–	JB	VOCs Diss Metals+LL Hg PCBs	

1 - Soil, GW, DI
2 - Soil sample depth interval, or borehole screen interval
3 - EB, TB, Dup, Co-locate, MS/MSD

2-31 Data Gaps Investigation
Boeing Plant 2

013-1646-009.200.05

Sample ID	Sample Date	Time	Media [1]	Depth Interval (ft bgs)[2]	QA/QC Sample[3]	Samplers Initials	Analyses	Comment
2-31-DP-06-01-S-0	9/1/2009	1956	S	0-1	—	JSl/TS	VOCs, metals, CN, %solids	2-31-DGI
2-31-DP-06-04-S-0		1959		4-5	MS/MSD metals			
2-31-DP-06-09-S-0		2004		9-10	MS/MSD VOCs			
2-31-DP-36-01-S-0		2032		0-1	—		VOCs, Metals %Solids PCBs	
2-31-DP-36-04-S-0		2034		4-5	—		VOCs Metals %Solids PCBs	
~~2-31-DP-36-04-S-0~~				~~4-5~~	colocate		~~VOCs %Solids~~	
2-31-DP-36-09-S-0		2041		9-10	MS/MSD PCBs		VOCs, Metals %Solids PCBs	
2-31-DP-06-40-W-0		2400	GW	40-44	—	JB	VOCs, Diss Metals + Hg Total + WAD CN	
Trip Blank	9/2/09	—	DI	—	TB	JSl/TLS	VOCs	
2-31-DP-05-01-S-0		1453	S	0-1	—		VOCs, Metals, CN, PCBs %Solids	
2-31-DP-05-04-S-0		1457	S	4-5	—			
2-31-DP-05-09-S-0	9/2/09	1500	S	9-10	—	JSl/TLS		—

1 - Soil, GW, DI
2 - Soil sample depth interval, or borehole screen interval
3 - EB, TB, Dup, Co-locate, MS/MSD

2-31 Data Gaps Investigation
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Sample ID	Sample Date	Time	Media [1]	Depth Interval (ft bgs)[2]	QA/QC Sample[3]	Samplers Initials	Analyses	Comment
2-31-DP-05-09-S-4	9/2/09	1502	S	9-10	Colocate	JSI/TLS	VOCs, %Solids	2-31 DGI
2-31-DP-34-01-S-0		1528		0-1	-		VOCs Metals %Solids	
2-31-DP-34-04-S-0		1530		4-5	-		"	
2-31-DP-34-04-S-4		1532		4-5	Colocate		VOCs, %Solids	
2-31-DP-34-09-S-0		1535	S	9-10	-	JSI/TLS	VOCs, Metals, %Solids.	
Trip Blank		-	DI	-	TB	JB	VOCs	
2-31-DP-05-10-W-0		1600	GW	10-14	-		VOCs, Diss Met+LLHg Tot+WAD CN PCBs	
2-31-DP-05-40-W-0		1845		40-44	-		"	
2-31-DP-34-10-W-0		1700		10-14	-		VOCs, Diss Met+LLHg	
2-31-DP-11-10-W-0		2015		10-14	-		"	
2-31-DP-11-40-W-0		~~2100~~ 2230		40-44	-		"	
2-31-DP-40-10-W-0	9/2/09	2100	GW	10-14	-	JB	VOCs SVOCs SIMPAHs Diss Metals+LLHg	2-31 DGI

1 - Soil, GW, DI
2 - Soil sample depth interval, or borehole screen interval
3 - EB, TB, Dup, Co-locate, MS/MSD

Sample ID	Sample Date	Time	Media [1]	Depth Interval (ft bgs)[2]	QA/QC Sample[3]	Samplers Initials	Analyses	Comment
2-31-DP-11-01-S-0	9/2/09	1840	S	0-1	—	JSI/TLS	VOCs Metals % Solids	2-31 DGI
2-31-DP-11-04-S-0		1843		4-5	—		⊥	
2-31-DP-11-04-S-4		1844		4-5	colocate		VOCs % Solids	
2-31-DP-11-09-S-0		1849		9-10	—		VOCs Metals % Solids	
2-31-DP-40-01-S-0		1915		0-1	MS/MSD on VOCs		VOCs Metals SVOCs SIMPAHs % Solids	
2-31-DP-40-04-S-0		1919		4-5	—		⊥	
2-31-DP-40-09-S-0	9/2/09	1926	S	9-10	—	JSI/TLS	⊥	⊥
Trip Blank	9/3/09	~	DI	—	TB	JSI/TLS	VOCs	2-31 DGI
2-31-DP-07-01-S-0		1513	S	0-1	MS/MSD on Metals		VOCs % Solids metals + CN	
2-31-DP-07-04-S-0		1516		4-5	—		⊥	
2-31-DP-07-09-S-0		1520		9-10	—		⊥	
2-31-DP-38-01-S-0	9/3/09	1539	S	0-1	—	JSI/TLS	VOCs % Solids Metals SVOCs, SIMPAHs,	2-31 DGI

1 - Soil, GW, DI
2 - Soil sample depth interval, or borehole screen interval
3 - EB, TB, Dup, Co-locate, MS/MSD

Sample ID	Sample Date	Time	Media [1]	Depth Interval (ft bgs)[2]	QA/QC Sample[3]	Samplers Initials	Analyses	Comment
2-31-DP-38-04-S-0	9/3/09	1543	S	4-5	—	JS1/TLS	VOCs %Solids, Metals SVOCs SIMPAH PCBs	2-31-DG2
2-31-DP-38-09-S-0		1547	S	9-10	—	JS1/TLS	"	
Trip Blank		—	DI	—	TB	JB	VOCs	
2-31-DP-07-10-W-0		1615	GW	10-14	—		VOCs diss Metals+LLHg Tot+WADCN	
2-31-DP-38-12-W-0		1730		12-16	—		VOCs diss metals+LLHg SVOCs, SIMPAHs PCBs	
2-31-DP-07-40-W-0		1845		40-44	—	JB	VOCs, diss metals+LLHg Tot+WADCN	
2-31-DP-48-10-W-0		2030		10-14	—		VOCs, diss metals+LLHg Tot+WACN	
2-31-DP-24-12-W-0		2140	GW	12-16	—	JB	"	
2-31-DP-48-01-S-0		1932	S	0-1	—	JS1/TLS	VOCs, Metals, CN + %Solids	
2-31-DP-48-04-S-0		1934		4-5	—			
2-31-DP-48-09-S-0		1946		9-10	—			
2-31-DP-24-01-S-0	9/3/09	2030	S	0-1	MS/MSD on VOCs	JS1/TLS	"	2-31 DG1

1 - Soil, GW, DI
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2-31 Data Gaps Investigation
Boeing Plant 2

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Sample ID	Sample Date	Time	Media [1]	Depth Interval (ft bgs)[2]	QA/QC Sample[3]	Samplers Initials	Analyses	Comment
2-31-DP-24-04-S-0	9/3/09	2031	S	4-5	-	JSI/TLS	VOCs Metals CN % Solids	2-31 DGI
2-31-DP-24-09-S-0	9/3/09	2035	S	9-10	-		"	"
Trip Blank	9/8/09	-	DI	-	TB	JSI/TLS	VOCs TPH-G	
2-31-DP-47-01-S-0		1439	S	0-1	-		VOCs Metals PCBs % Solids	
2-31-DP-47-01-S-4		1442		0-1	Colocate		VOCs % Solids	
2-31-DP-47-04-S-0		1444		4-5	-		VOCs Metals PCBs % Solids	
2-31-DP-47-09-S-0		1447		9-10	-		"	
2-31-DP-49-01-S-0		1518		0-1	MS/MSD on CN		VOCs Metals CN Dx, Gx, % Solids	
2-31-DP-49-04-S-0		1520		4-5	-		"	
2-31-DP-49-09-S-0		1532		9-10	-		"	
2-31-DP-29-01-S-0		1623		0-1	MS/MSD on TPH-Dx TPH-Gx		VOCs, Metals, CN, Dx, Gx % Solids	
2-31-DP-29-04-S-0	9/8/09	1628	S	4-5	MS/MSD on VOCs	JSI/TLS	"	2-31-DGI

1 - Soil, GW, DI
2 - Soil sample depth interval, or borehole screen interval
3 - EB, TB, Dup, Co-locate, MS/MSD

Sample ID	Sample Date	Time	Media [1]	Depth Interval (ft bgs)[2]	QA/QC Sample[3]	Samplers Initials	Analyses	Comment
2-31-DP-29-09-S-0	9/8/09	1640	S	9-10	-	JSI/TLS	VOCs Metals CN Dx, Gx, % Solids.	2-31-DGI
2-31-DP-37-01-S-0	"	1748	"	0-1	-	JSI TLS	VOCs Metals PCBs % Solids	"
2-31-DP-37-04-S-0	"	1751	"	4-5	MS/MSD on VOCs	"	"	"
2-31-DP-37-09-S-0	"	1758	"	9-10	-	"	"	"
2-31-DP-35-01-S-0	"	1822	"	0-1	-	"	VOCs Metals % Solids	"
2-31-DP-35-04-S-0	"	1824	"	4-5	-	"	"	"
2-31-DP-35-09-S-0	"	1829	"	9-10	-	JSI/TLS	"	"
Trip Blank	9/8/09	-	DI	-	TB	JB	VOCs TPH-Gx	2-31-DGI

1 - Soil, GW, DI
2 - Soil sample depth interval, or borehole screen interval
3 - EB, TB, Dup, Co-locate, MS/MSD

2-31 Data Gaps Investigation
Boeing Plant 2

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Sample ID	Sample Date	Time	Media [1]	Depth Interval (ft bgs)[2]	QA/QC Sample[3]	Samplers Initials	Analyses	Comment
2-31-DP-49-10-W-0	9/8/09	1550	GW	10-14	-	JB	VOCs dissMetals+LLHg PCBs	2-31 DGI
2-31-DP-49-10-W-0		1640	GW	10-14	-		VOCs dissMetals+LLHg Tot+WADCN, TPH-Dx, Gx	
2-31-DP-29-10-W-0		1730	GW	10-14	-		"	
2-31-DP-37-10-W-0		1900	GW	10-14	-		VOCs dissMetals+LLHg PCBs	
2-31-DP-35-12-W-0		2000	GW	12-16	-		VOCs dissMetals+LLHg	
2-31-DP-41-10-W-0		2100	GW	10-14	-	JB	VOCs dissMetals+LLHg SVOCs + SIMPAHs	
2-31-DP-41-01-S-0		1949	S	0-1	-	JSI/TLS	VOCs metals %Solids SVOCs+SIMPAHs	
2-31-DP-41-04-S-0	9/8/09	1951	S	4-5	-	JSI/TLS	"	2-31 DGI

1 - Soil, GW, DI
2 - Soil sample depth interval, or borehole screen interval
3 - EB, TB, Dup, Co-locate, MS/MSD

2-31 Data Gaps Investigation
Boeing Plant 2

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Sample ID	Sample Date	Time	Media [1]	Depth Interval (ft bgs)[2]	QA/QC Sample[3]	Samplers Initials	Analyses	Comment
2-31-DP-41-09-S-0	9/8/09	1955	S	9-10	-	JSI/TLS	VOCs metals SVOCs, SIMPAHs %solids	2-31 DGI
2-31-DP-43-01-S-0	"	2035	S	0-1	-	"	VOCs metals %Solids	"
2-31-DP-43-04-S-0	"	2037	S	4-5	-	"	"	"
2-31-DP-43-09-S-0	"	2048	S	9-10	-	JSI/TLS	"	"
2-31-DP-43-10-W-0	9/8/09	2200	GW	10-14	-	JB	VOCs diss Metals diss LL HS	2-31 DGI
Trip Blank	9/9/09	-	DI	-	TB	JSI/TLS	VOCs	"
2-31-DP-50-01-S-0	"	1355	S	0-1	-	"	VOCs %Solids metals PCBs	"
2-31-DP-50-04-S-0	9/9/09	1357	S	4-5	-	JSI/TLS	"	2-31 DGI

1 - Soil, GW, DI
2 - Soil sample depth interval, or borehole screen interval
3 - EB, TB, Dup, Co-locate, MS/MSD

2-31 Data Gaps Investigation
Boeing Plant 2

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Sample ID	Sample Date	Time	Media [1]	Depth Interval (ft bgs)[2]	QA/QC Sample[3]	Samplers Initials	Analyses	Comment
2-31-DP-50-09-S-00	9/9/09	1406	S	9-10	-	JSl/TLS	VOCs %Solids Metals PCBs	2-31 DGI
2-31-DP-25-01-S-00		1720		0-1	-		VOCs %solids metals + CN	
2-31-DP-25-04-S-00		1728		4-5 ~~0-1~~	-			
2-31-DP-25-09-S-00		1742		9-10	-			
2-31-DP-26-01-S-00		1552		0-1	-		VOCs %Solids Metals	
2-31-DP-26-01-S-4		1554		0-1	colocate		VOCs %Solids	
2-31-DP-26-04-S-00		1600		4-5	~~MS/MSD~~ -		VOCs %Solids Metals	
2-31-DP-26-09-S-00		1615	S	9-10	MS/MSD on VOCs	JSl/TLS		
2-31-DP-50-10-W-00		1430	GW	10-14	-	JB	VOCs diss Metals +LL Htg, PCBs	
Trip Blank		-	DI	-	TB		VOCs	
2-31-DP-25-10-W-00		1845	GW	10-14	-		VOCs diss Metals +LL Htg Tot+WAD CN	
2-31-DP-26-10 W-00	9/9/09	1715	GW	10-14	-	JB	VOCs diss Metals +LL Htg	2-31 DGI

1 - Soil, GW, DI
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3 - EB, TB, Dup, Co-locate, MS/MSD

2-31 Data Gaps Investigation
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Sample ID	Sample Date	Time	Media [1]	Depth Interval (ft bgs)[2]	QA/QC Sample[3]	Samplers Initials	Analyses	Comment
2-31-DP-45-01-S-0	9/9/09	1903	S	0-1	-	JSl/TLS	VOCs % Solids Metals PCBs	2-31 DGI
2-31-DP-45-04-S-0		1910		4-5	-			
2-31-DP-45-09-S-0		1922		9-10	-			
2-31-DP-46-01-S-0		1956		0-1	MS/MSD on Metals		~~VOCs~~	
2-31-DP-46-04-S-0		1958		4-5	-			
2-31-DP-46-09-S-0		2007	S	9-10	-	JSl/TLS		
2-31-DP-45-10-W-0		1945	GW	10-14	-	JB	VOCs diss metals + ~~Hg~~ PCBs	
2-31-DP-46-10-W-0	9/9/09	2030	GW	10-14	-	JB		2-31 DGI
Trip Blank	9/10/09	-	DI	-	TB	JSl/TLS	VOCs, ~~TPH-Gx~~	2-31 DGI
2-31-DP-22-01-S-0		1232	S	0-1	MS/MSD on Metals	JSl/TLS	VOCs % Solids metals	
2-31-DP-22-04-S-0		1234	S	4-5	-			
2-31-DP-22-09-S-0	9/10/09	1240	S	9-10	-	JSl/TLS		2-31 DGI

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2-31 Data Gaps Investigation
Boeing Plant 2

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Sample ID	Sample Date	Time	Media [1]	Depth Interval (ft bgs)[2]	QA/QC Sample[3]	Samplers Initials	Analyses	Comment
2-31-DP-16-01-S-0	9/10/09	1456	S	0-1	-	JSI/TLS	VOCs %Solids metals	2-31 DGI
2-31-DP-16-04-S-0		1458		4-5	-			
2-31-DP-16-09-S-0		1512		9-10	-			
2-31-DP-17-01-S-0		1412		0-1	-		VOCs %Solids metals CN PCBs SVOCs SimPAHs	
2-31-DP-17-04-S-0		1424		4-5	-			
2-31-DP-17-09-S-0		1432	S	9-10	-			
2-31-DP-18-01-W-3		1540	DI	-	EB		VOCs metals CN, PCBs SVOCs SimPAHs TPH Gx TPH Dx	
Trip Blank		-	DI	-	TB		VOCs TPH Gx	
Trip Blank		-	~~DI~~ Aq.	-	TB		VOCs TPH Gx	2-31 Waste Char
2-31-Z900519-Liquids			Slurry	-	-		VOCs RCRA metals, pH, ~~Tot~~ Tot CN,	
2-31-Z900519-Solids				-	-		+%Solids	
2-31-Z900518-Liquids	9/10/09	1805		-	-	JSI/TLS	VOCs RCRA Metals pH Tot CN PCBs	

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2-31 Data Gaps Investigation
Boeing Plant 2

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Sample ID	Sample Date	Time	Media [1]	Depth Interval (ft bgs)[2]	QA/QC Sample[3]	Samplers Initials	Analyses	Comment
jsl 2-31-Z96518-Solids	9/10/09		Slurry			JS/TLS	VOCs RCRA Metals TotCN, pH, PCBs + %Solids	2-31 Waste Char
2-31-Z96441		1815	S	—	—	JS/TLS	VOCs Metals, SVOCs, SIM PAHs, CN, TPH-G, TPH-Dx, PCBs, %Solids	"
Trip Blank		—	DI	—	TB	JB	VOCs	2-31 DGI
2-31-DP-22-10-W-0		1315	GW	10-14	—	JB	VOCs diss Metals +LLHg	
2-31-DP-16-10-W-0		1530	GW	10-14	—	JB	"	
2-31-DP-17-10-W-0		1445	GW	10-14	—	JB	VOCs diss Metals + LLHg, SVOCs SIM PAHs, Tot+WAD CN PCBs	
2-31-DP-18-10-W-0		1630	GW	10-14	—	JB	VOCs diss Metals +LLHg	
2-31-DP-18-01-S-0		1556	S	0-1	MS/MSD on VOCs	JS/TLS	VOCs + metals %Solids	
2-31-DP-18-04-S-0		1610	S	4-5	—		"	
2-31-DP-18-09-S-0		1626	S	9-10	—		"	
2-31-DP-18-04-S-4	9/10/09	1614	S	4-5	Co locate	JS/TLS	VOCs + %Solids	2-31 DGI
Trip Blank	9/11/09	—	DI	—	TB	JS/TLS	VOCs	2-31-DGI

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2-31 Data Gaps Investigation
Boeing Plant 2

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Sample ID	Sample Date	Time	Media [1]	Depth Interval (ft bgs)[2]	QA/QC Sample[3]	Samplers Initials	Analyses	Comment
2-31-DP-12-Ø1-S-Ø	9/11/09	Ø754	S	0-1	-	JS/TLS	VOCs %Solids Metals CN	2-31 DGI
2-31-DP-12-Ø4-S-Ø		Ø8ØØ		4-5	MS/MSD on CN			
2-31-DP-12-Ø9-S-Ø		Ø815		9-10	-			
2-31-DP-1Ø-Ø1-S-Ø		Ø912		0-1	MS/MSD on Metals		VOCs %Solids Metals	
2-31-DP-1Ø-Ø4-S-Ø		Ø914		4-5	-			
2-31-DP-1Ø-Ø9-S-Ø		Ø928	S	9-10	-	JS/TLS		
Trip Blank		-	DI	-	TB	JB	VOCs ~~diss Metals+LLHg Tot+WAD CN~~	
2-31-DP-12-1Ø-W-Ø		Ø83Ø	GW	10-14	-		VOCs diss Metals+LLHg ~~total~~ +WAD CN	
2-31-DP-12-4Ø-W-Ø		1114		40-44	-		VOCs diss Metals+LLHg total +WAD CN	
2-31-DP-1Ø-1Ø-W-Ø		Ø94Ø		10-14	-		VOCs ~~diss~~ Metals+LLHg	
2-31-DP-1Ø-4Ø-W-Ø	9/11/09	1300	GW	40-44	-	JB		2-31 DGI
Trip Blank	9/14/09	-	DI	-	TB	JS/TLS	VOCs	2-31 DGI

1 - Soil, GW, DI
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2-31 Data Gaps Investigation
Boeing Plant 2

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Sample ID	Sample Date	Time	Media [1]	Depth Interval (ft bgs)[2]	QA/QC Sample[3]	Samplers Initials	Analyses	Comment
2-31-DP-08-01-S-0	9/14/2009	0746	S	0-1	—	JS/TLS	VOCs metals PCBs %solids	2-31 DGI
2-31-DP-08-04-S-0		0749 ~~0748~~		4-5	—			
2-31-DP-08-09-S-0		0800 ~~0749~~		9-10	—			
2-31-DP-09-01-S-0		0827 ~~0800~~		0-1	—		VOCs metals %solids	
2-31-DP-09-04-S-0		0829		4-5	—			
2-31-DP-09-09-S-0		0834	S	9-10	—			
2-31-DP-08-01-S-4		0748	S	0-1	colocate		VOCs %solids	
2-31-DP-09-09-S-4		0836	S	9-10	colocate	JS/TLS		
Trip Blank		—	DI	—	TB	JB	VOCs	
2-31-DP-08-10-W-0		0830	GW	10-14	—		VOCs DISS Metals + ULtg PCBs	
2-31-DP-08-40-W-0		1200		40-44	—			
2-31-DP-09-~~10~~ 12-W-0	9/14/09	1130	GW	~~10-14~~ 12-16	—	JB	VOCs diss Metals + ULtg	2-31 DGI

1 - Soil, GW, DI
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Sample ID	Sample Date	Time	Media [1]	Depth Interval (ft bgs)[2]	QA/QC Sample[3]	Samplers Initials	Analyses	Comment
2-31-DP-09-40-W-0	9/14/09	1400	GW	40-44	-	JB	VOCs diss metals+CLHG	2.31 DGI
2-31-DP-42-10-W-0	"	0920	GW	10-14	-	JB	"	"
2-31-DP-42-10-W-1	"	0930	GW	10-14	field Dup	JB	"	"
2-31-DP-42-01-S-0	"	0901	S	0-1	-	JS/TLS	VOCs Metals %Solids	"
2-31-DP-42-04-S-0	"	0903	S	4-5	-	"	"	"
2-31-DP-42-09-S-0	9/14/09	0906	S	9-10	ms/msd on Metals	"	"	"
Trip Blank	9/15/09	-	DI	-	TB	JS/TLS	VOCs	2.31 DGI
2-31-DP-44-01-S-0	"	0520	S	0-1	-	"	VOCs Metals %Solids PCBs	~~HOLD~~ CANCEL
2-31-DP-44-04-S-0	"	0522	S	4-5	-	"	"	~~HOLD~~ CANCEL
~~2-31-DP-30-01-S-0~~								
2-31-DP-~~30~~ 15 -~~01~~ 09-S-0	"	~~0701~~	S	9-10	ms/msd on PCBs	"	VOCs %Solids Metals PCBs	
2-31-DP-30-09-S-0	9/15/09	0638	S	9-10	-	JS/TLS	"	"

1 - Soil, GW, DI
2 - Soil sample depth interval, or borehole screen interval
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2-31 Data Gaps Investigation
Boeing Plant 2

013-1646-009.200.05

Sample ID	Sample Date	Time	Media [1]	Depth Interval (ft bgs)[2]	QA/QC Sample[3]	Samplers Initials	Analyses	Comment
2-31-DP-27-01-S-0	9/15/09	0922	S	0-1	-	JS/TLS	VOCs Metals + CN %Solids	2-31DGI
2-31-DP-27-04-S-0		0929	S	4-5	-			
2-31-DP-27-09-S-0		0937	S	9-10	-	JS/TLS		
Trip Blank		-	DI	-	TB	JB	VOCs	
2-31-DP-30-10-W-0		0800	GW	10-14	-	JB	VOCs diss Metals+LLHg PCBs	
2-31-DP-15-10-W-0		0840	GW	10-14	-	JB		
2-31-DP-27-10-W-0		1060	GW	10-14	-	JB	VOCs diss Metals+LLHg Tot+WADCN	
2-31-DP-21-10-W-0		1145	GW	10-14	-	JB	VOCs diss Metals+LLHg	
2-31-DP-23-10-W-0		1230	GW	10-14	-	JB		
2-31-DP-21-01-S-0		1100	S	0-1	-	JS/TLS	VOCs Metals %Solids	
2-31-DP-21-04-S-0		1104	S	4-5	-			
2-31-DP-21-09-S-0	9/15/09	1110	S	9-10	-			

1 - Soil, GW, DI
2 - Soil sample depth interval, or borehole screen interval
3 - EB, TB, Dup, Co-locate, MS/MSD

2-31 Data Gaps Investigation
Boeing Plant 2

013-1646-009.200.05

Sample ID	Sample Date	Time	Media [1]	Depth Interval (ft bgs)[2]	QA/QC Sample[3]	Samplers Initials	Analyses	Comment
2-31-DP-23-01-S-0	9/15/09	1133	S	0-1	–	JS/TLS	VOCs Metals %Solids	2-31DGI
2-31-DP-23-04-S-0	"	1137	"	4-5	–	"	"	"
2-31-DP-23-09-S-0	"	1142	"	9-10	–	"	"	"
2-31-DP-23-09-S-4	9/15/09	1145	S	9-10	co locate	"	VOCs %Solids	"
Trip Blank	9/16/09	–	DI	–	TB	JS/TLS	VOCs, TPH-G	2-31DGI
2-31-DP-01-~~S~~-0	"	0728	S	0-1	–	"	VOCs TPHG %Solids Metals TPHD	"
2-31-DP-01-~~S-4~~	"	0730	S	0-1	co locate	"	VOCs %Solids	"
2-31-DP-04-04-S-0	"	0737	S	4-5	–	"	VOCs TPHG %Solids Metals TPHD	"
2-31-DP-04-09-S-0	"	0745	S	9-10	–	"	"	"
2-31-DP-39-01-S-0	"	0912	S	0-1	–	"	VOCs SVOCs SIMPAHs Metals Cyanide TPHG TPHD PCBs %Solids	"
2-31-DP-39-04-S-0	"	0924	S	4-5	–	"	"	"
2-31-DP-39-09-S-0	9/16/09	0937	S	9-10	–	JS/TLS	"	"

1 - Soil, GW, DI
2 - Soil sample depth interval, or borehole screen interval
3 - EB, TB, Dup, Co-locate, MS/MSD

2-31 Data Gaps Investigation
Boeing Plant 2

013-1646-009.200.05

Sample ID	Sample Date	Time	Media [1]	Depth Interval (ft bgs)[2]	QA/QC Sample[3]	Samplers Initials	Analyses	Comment
2-31-DP-39-09-S-4	9/16/09	0939	S	9-10	co locate	JSI/TLS	VOCs %o Solids	2-31 DGI
2-31-DP-01-10-W-0	"	0815	GW	10-14	—	JB	VOCs diss Metals +LLHg TPHG TPHD	"
Trip Blank	"	—	DI	—	TB	"	VOCs TPHG	"
2-31-DP-39-10-W-0	"	1000	GW	10-14	—	"	(See Table 2-2 everything	"
2-31-DP-39-40-W-0	9/16/09	1240	GW	40-44	—	"	"	"
2-31-DP-39-68-W-0	9/17/09	1110	GW	68-72	—	JB	"	"
Trip Blank	9/17/09	—	DI	—	TB	JB	VOCs TPH-G	2-31 DGI
Trip Blank	9/21/09	—	DI	—	TB	JSI/TLS	VOCs	"
2-31-DP-44-01-S-0	9/21/09	0528	S	0-1	—	"	VOCs %o Solids Metals PCBs	"
2-31-DP-44-04-S-0	"	0530	S	4-5	—	"	"	"
2-31-DP-44-09-S-0	"	0535	S	9-10	—	"	"	"
2-31-DP-44-10-W-0	"	0613	GW	10-14	—	KA	VOCs diss Metals +LLHg PCBs	"

1 - Soil, GW, DI
2 - Soil sample depth interval, or borehole screen interval
3 - EB, TB, Dup, Co-locate, MS/MSD

2-31 Data Gaps Investigation
Boeing Plant 2

013-1646-009.200.05

Sample ID	Sample Date	Time	Media [1]	Depth Interval (ft bgs)[2]	QA/QC Sample[3]	Samplers Initials	Analyses	Comment
2-31-DP-19-01-S-0	9/21/09	0748	S	0-1	-	JS1/TLS	VOCs % Solids Metals	2-31 DGI HOLD
2-31-DP-19-04-S-0		0750	S	4-5	-		⊥	⊥ HOLD
~~2-31-DP-19-09-S-0~~				9-10	MS/MSD on Metals			
2-31-DP-20-01-S-0		0708	S	0-1	-		⊥	2-31 DGI
2-31-DP-20-01-S-4		0711		0-1	co locate		VOCs % Solids	
2-31-DP-20-04-S-0		0709		4-5	-		VOCs % Solids Metals	
2-31-DP-20-09S-0		0725		9-10	-		⊥	
2-31-DP_13-01-S-0		1334		0-1	-		VOCs % Solids Metals cyanide SVOCs SIMPAHs PCBs	
2-31-DP-13-01-S-4		1336		0-1	co locate		VOCs % Solids	
2-31-DP-13-04-S-0		1337		4-5	-		VOCs % Solids Metals cyanide SVOCs SIMPAHs PCBs	
2-31-DP-13-09-S-0		1342		9-10	-		⊥	
2-31-DP-14-01-S-0		1412		0-1	-		⊥	

1 - Soil, GW, DI
2 - Soil sample depth interval, or borehole screen interval
3 - EB, TB, Dup, Co-locate, MS/MSD

2-31 Data Gaps Investigation
Boeing Plant 2

013-1646-009.200.05

Sample ID	Sample Date	Time	Media [1]	Depth Interval (ft bgs)[2]	QA/QC Sample[3]	Samplers Initials	Analyses	Comment
2-31-DP-14-04-S-0	9/21/09	1414	S	4-5	-	JSl TLSl	VOCs %Solids Metals Cyanide SVOCs SIMPAHs PCBs	2-31 DGI
2-31-DP-14-09-S-0	"	1422	S	9-10	-	"	"	"
Trip Blank	"	-	DI	-	TB	KA	VOCs	"
2-31-DP-20-10-W-0	"	0749	GW	10-14	-	"	VOCs diss Metals + LLHg	"
2-31-DP-13-10-W-0	"	1458	GW	10-14	-	"	VOCs diss Metals + LLHg TOT + WADCN SVOCs + SIMPAH PCBs	"
2-31-DP-14-12-W-0	9/21/09	1430	GW	12-16	-	"	"	"
2-31-Z900446	9/22/09	1030	S	-	-	JSl	VOCs Metals, Cyanide SVOCs + SIMPAHs PCBs TPH-Dx, TPH-Gx, %Solids	2-31 Waste Char
Trip Blank	9/22/09	-	DI	-	TB	JSl	VOCs TPH-Gx	"
Trip Blank	9/24/09	-	DI	-	TB	JSl/TLS	VOCs, TPH-Gx	2-31 DGI
2-31-DP-19-01-S-0	"	0752	S	0-1	-	"	VOCs Metals %Solids	"
2-31-DP-19-04-S-0	"	0754	S	4-5	-	"	"	"
2-31-DP-19-09-S-0	9/24/09	0759	S	9-10	MS/MSD on Metals	JSl/TLS	"	"

1 - Soil, GW, DI
2 - Soil sample depth interval, or borehole screen interval
3 - EB, TB, Dup, Co-locate, MS/MSD

2-31 Data Gaps Investigation
Boeing Plant 2

013-1646-009.200.05

Sample ID	Sample Date	Time	Media [1]	Depth Interval (ft bgs)[2]	QA/QC Sample[3]	Samplers Initials	Analyses	Comment
Trip Blank	9/24/09	–	DI	–	TB	JB	VOCs TPH-G	2-31-DGI
2-31-DP-19-10-W-0		0845	GW	10-14	–	JB	VOCs diss Metals + Lithg	
2-31-DP-02-10-W-0		1040	GW	10-14	–	JB	VOCs SVOCs + SIMPAHs Diss Metals + Lithg Tot+WAD CN, TPH-G, TPH-D	
2-31-DP-02-40-W-0		1400	GW	40-44	–	JB	"	
2-31-DP-02-01-S-0		1005	S	0-1	–	JSI/TLS	VOCs SVOCs + SIMPAHs Metals, CN, TPH-G TPH-D, PCBs	
2-31-DP-02-04-S-0		1007	S	4-5	MS/MSD on SVOCs + SIMPAHs		"	only enough vol for MS.
2-31-DP-02-09-S-0	9/24/09	1018	S	9-10	MS/MSD on CN		"	
2-31-DP-19-10-W-1	9/24/09	0855	GW	10-14	Field Dup	JB	VOCs Diss Metals + Lithg	
Trip Blank	9/28/09	–	DI	–	TB	JSI	VOCs TPH-G	2-31 Waste Char
2-31-Z900447		0755	S	–	–	JSI	VOCs, TPH-G, %Solids TPH-D, PCBs, Metals, CN, SVOCs + SIMPAHs	
2-31-Z900519-Liquids		0811	L	–	–	JSI	RCRA Metals pH VOCs Tot CN,	
2-31-Z900519-Solids	9/28/09	0825	S	–	–	JSI	"	

1 - Soil, GW, DI
2 - Soil sample depth interval, or borehole screen interval
3 - EB, TB, Dup, Co-locate, MS/MSD

2-31 Data Gaps Investigation
Boeing Plant 2

013-1646-009.200.05

Sample ID	Sample Date	Time	Media [1]	Depth Interval (ft bgs)[2]	QA/QC Sample[3]	Samplers Initials	Analyses	Comment
Trip Blank	10/1/09	–	DI	–	TB	JB/KA	TPH-G VOCs ~~All-see Table 2-2~~	2-31 DGI
2-31-PL2-502A-W-0	10/1/09	0842	GW	8-18	MS/MSD on All parameter	JB/KA	All- see Table 2-2	
2-31-PL2-503A-W-0	10/1/09	1254	GW	7-17.5	MS/MSD on VOCs + diss Met + LLHg	JB/KA	See Table 2.2	
Trip Blank	10/2/09	–	DI	–	TB	KA	VOCs	
2-31-PL2-501A-W-0		0910	GW	10-20	–		VOCs, Tot + Diss metals + LLHg, Redox, Tot + w/ADCN	
2-31-PL2-501B-W-0		1032	GW	40-50	MS/MSD on VOCs, CN, diss met + LLHg			
2-31-PL2-501C-W-0	10/2/09	1245	GW	68-78	MS/MSD on VOCs diss Met + LLHg	KA	VOCs Tot + Diss metals + LLHg, Redox	
Trip Blank	10/5/09	–	DI	~~[illegible]~~ -	TB	KA/JB	VOCs TPH-G	
2-31-PL2-509A-W-0		0839	GW	8-18	–		See Table 2.2	
2-31-PL2-509B-W-0		1043	GW	40-50	–			
2-31-PL2-509A-W-1		0850	GW	8-18	Field Dup	KA/JB		
2-31-PL2-504A-W-0	10/5/09	1150	GW	4.2-14.7	–	KA/JB	See Table 2.2	2-31 DGI

1 - Soil, GW, DI
2 - Soil sample depth interval, or borehole screen interval
3 - EB, TB, Dup, Co-locate, MS/MSD

2-31 Data Gaps Investigation
Boeing Plant 2

013-1646-009.200.05

Sample ID	Sample Date	Time	Media [1]	Depth Interval (ft bgs)[2]	QA/QC Sample[3]	Samplers Initials	Analyses	Comment
2-31-PL2-505A-W-Ø	10/5/09	1330	GW	9-24.5	-	KA/JB	See Table 2.2	2-31 DGI
2-31-PL2-505A-W-1	10/5/09	1345	GW	9-24.5	Field Dup	KA/JB	"	"
Trip Blank	10/6/09	-	DI	-	TB	KA/JB	VOCs TPH-G	"
2-31-PL2-233A-W-Ø	10/6/09	1035	GW	10-25	-	"	See Table 2.2	"
2-31-PL2-233A-W-1	10/6/09	1100	GW	10-25	Field Dup	"	"	"
2-31-PL2-507A-W-Ø	10/6/09	1451	GW	8-18	-	"	"	"
2-31-PL2-507A-W-1	10/6/09	1500	GW	8-18	Field Dup	"	"	"
2-31-PL2-507B-W-Ø	10/6/09	1300	GW	35-45	-	"	"	"
2-31-PL2-507B-W-1	10/6/09	1315	GW	35-45	Field Dup	"	"	"
2-31-PL2-507C-W-Ø	10/7/09	0840	GW	75-85	-	KA/JB	See Table 2.2	2-31 DGI
Trip Blank	10/7/09	-	DI	-	TB	KA/JB	VOCs	"

1 - Soil, GW, DI
2 - Soil sample depth interval, or borehole screen interval
3 - EB, TB, Dup, Co-locate, MS/MSD

Table 2-2
2-31 Area Proposed CMS Data Gaps Sampling
Boeing Plant 2

Location	Sample Interval (ft bgs)	Constituent Groups with 2-31 Area COCs in Groundwater: VOCs	SVOCs (cPAHs)	Total and Dissolved Metals	Total and WAD Cyanide	TPH-G, TPH-Dx, TPH-O	Other Constituent Groups: PCBs	Redox Parameters	Rationale for Selection of Laboratory Analyses
GROUNDWATER SAMPLING SUMMARY									
New Wells									
PL2-507B	35 - 45	•	•	• dup diss. only	•		•	•	Constituent list to match PL2-507A.
PL2-507C	75 - 85	•	•	•	•		•	•	Constituent list to match PL2-507A.
Existing Wells									
PL2-233A	10 - 25	•	•	•	•	•		•	PCBs not a GW COC for 2-31 Area. Analyze all 2-31 Area COCs.
PL2-501A	10 - 20	•		•	•			•	Evaluate the soil to groundwater pathway for selected soil COCs from the VOC analyte list. PCBs not a GW COC for 2-31 Area. SVOCs and TPH ND near well. Cyanide detected in the A-level near well.
PL2-501B	40 - 50	•		• MS/MSD diss. Only	•			•	PCBs not a GW COC for 2-31 Area. SVOCs and TPH ND in A-level near well. Cyanide detected in the A-level near well.
PL2-501C	68 - 78	•		• MS/MSD diss. Only				•	PCBs not a GW COC for 2-31 Area. SVOCs and TPH ND in A-level near well. Cyanide will be analyzed at a later time if detected > SL in the B-level.
PL2-502A	8 - 18	•	•	•	•	•	•	•	Evaluate the soil to groundwater pathway for selected soil COCs from the metals and SVOC analyte lists and PCBs. Cyanide detected near well. TPH never analyzed at or near well.
PL2-503A	7 - 17.5	•	•	• MS/MSD diss. Only		•		•	PCBs not a GW COC for 2-31 Area. SVOCs detected near well. Cyanide ND near well. TPH detected in samples from well.
PL2-504A	4.2 - 14.7	•	•	•		•		•	PCBs not a GW COC for 2-31 Area. SVOCs detected near well. Cyanide ND near well. TPH detected in samples from well.
PL2-505A	9 - 24.5	•	•	• dup diss. only		•		•	PCBs not a GW COC for 2-31 Area. SVOCs detected near well. Cyanide ND near well. TPH detected in samples from well.
PL2-507A	8 - 18	•	•	• dup diss. only	•		•	•	Evaluate the soil to groundwater pathway for selected soil COCs from the metals analyte list and PCBs. SVOCs and TPH ND near well.
PL2-508A	9 - 19	Not Sampled							Redundant sampling location with PL2-509A.
PL2-509A	8 - 18	•	•	• dup diss. only	•	•		•	Evaluate the soil to groundwater pathway for selected soil COCs from the metals and SVOC analyte lists and cyanide. PCBs not a GW COC for 2-31 Area. TPH not analyzed near well.
PL2-509B	40 - 50	•		•	•			•	PCBs not a GW COC for 2-31 Area. SVOCs and TPH ND in A-level near well. Cyanide detected in the A-level near well.

BLUE = DUPLICATE
YELLOW = MS/MSD

38
7

34/50
8/12

Table 2-2
2-31 Area Proposed CMS Data Gaps Sampling
Boeing Plant 2

Location	Sample Interval (ft bgs)	Constituent Groups with 2-31 Area COCs in Groundwater					Other Constituent Groups		Rationale for Selection of Laboratory Analyses
		VOCs	SVOCs (cPAHs)	Dissolved Metals	Total and WAD Cyanide	TPH-G, TPH-Dx, TPH-O	PCBs	Redox Parameters	
GROUNDWATER SAMPLING SUMMARY									
Direct Push Locations									
2-31-DP-01	10 - 14	✓ •		✓ • ✓		✓ • ✓			Evaluate the soil to groundwater pathway for TPH.
2-31-DP-02	10 - 14 40 - 44	✓ ✓ • ✓	✓ ✓ • ✓ ✓	✓ ✓ ✓ • ✓	✓ •	✓ ✓ ✓ • ✓			Evaluate GW quality at former PL2-506A location. SVOCs detected near probe location. TPH detected in sample from PL2-506A.
2-31-DP-03	10 - 14 40 - 44	✓ • ✓		✓ ✓ • ✓	✓ •				Near PL2-509A to determine the lateral extent of VOC impacts from AOC 2-31.21. Evaluate the soil to groundwater pathway for selected soil COCs from the metals and VOC analyte lists and cyanide.
2-31-DP-04	10 - 14 40 - 44	✓ • ✓		✓ ✓ • ✓	✓ •				Near PL2-509A to determine the lateral extent of VOC impacts from AOC 2-31.21. Cyanide detected nearby. Evaluate the soil to groundwater pathway for selected soil COCs from the VOC analyte list.
2-31-DP-05	10 - 14 40 - 44	✓ • ✓		✓ ✓ • ✓	✓ •		✓ •		Downgradient of PL2-501A to determine extent of VOC impacts from AOC 2-31.21. Cyanide detected nearby. Evaluate the soil to groundwater pathway for PCBs.
2-31-DP-06	10 - 14 40 - 44	✓ • ✓		✓ ✓ • ✓	✓ •				Downgradient of PL2-501A to determine extent of VOC impacts from AOC 2-31.21. Cyanide detected nearby.
2-31-DP-07	10 - 14 40 - 44	✓ • ✓		✓ ✓ • ✓	✓ •				Downgradient of PL2-501A to determine extent of VOC impacts from AOC 2-31.21. Cyanide detected nearby.
2-31-DP-08	10 - 14 40 - 44	✓ • ✓		✓ ✓ • ✓			✓ ✓		Downgradient of PL2-502A to determine extent of VOC impacts from AOC 2-31.21.
2-31-DP-09	~~10 - 14~~ 12-16 40 - 44	✓ • ✓		✓ ✓ • ✓					Downgradient of PL2-502A to determine extent of VOC impacts from AOC 2-31.21.
2-31-DP-10	10 - 14 40 - 44	✓ • ✓		✓ ✓ • ✓					Downgradient of PL2-502A to determine extent of VOC impacts from AOC 2-31.21.
2-31-DP-11	10 - 14 40 - 44	✓ • ✓		✓ ✓ • ✓					Downgradient of PL2-502A to determine extent of VOC impacts from AOC 2-31.21.
2-31-DP-12	10 - 14 40 - 44	✓ • ✓		✓ ✓ • ✓	✓ •				Evaluate TCE release downgradient of AOC 2-31.21. Probe data from 1995 and 2002 indicate VOCs in this area. Cyanide detected nearby.
2-31-DP-13	10 - 14	✓ •	✓ • ✓	✓ • ✓	✓ •		✓ •		Evaluate the soil to groundwater pathway for selected soil COCs from the SVOC analyte list and cyanide and PCBs.

4/16/09 0815
9/24/09 1040
1400
9/11 09 1615
1900
8/31/09 1820
↓ 2245
9/2/09 1600
1845
9/1/09 2100
↓ 2400
9/3/09 1615
↓ 1845
9/14/09 0830
↓ 1200
9/14/09 1130
↓ 1400
9/11/09 940
↓ 1300
9/2/09 2015
↓ 2230
9/11/09 0830
↓ 1110
9/2/09 1458

BLUE = DUPLICATE
YELLOW = MS/MSD

Table 2-2
2-31 Area Proposed CMS Data Gaps Sampling
Boeing Plant 2

Location	Sample Interval (ft bgs)	Constituent Groups with 2-31 Area COCs in Groundwater					Other Constituent Groups		Rationale for Selection of Laboratory Analyses
		VOCs	SVOCs (cPAHs)	Dissolved Metals	Total and WAD Cyanide	TPH-G, TPH-Dx, TPH-O	PCBs	Redox Parameters	
GROUNDWATER SAMPLING SUMMARY									
Direct Push Locations									
2-31-DP-14	~~10 - 14~~ 12-16	✓ •	✓ • ✓	✓ • ✓	✓ •		✓ •		Evaluate the soil to groundwater pathway for selected soil COCs from the SVOC analyte list and cyanide and PCBs.
2-31-DP-15	10 - 14	✓ •		✓ • ✓			✓ •		Evaluate the soil to groundwater pathway for PCBs.
2-31-DP-16	10 - 14	✓ •		✓ • ✓					Evaluate the soil to groundwater pathway for selected soil COCs from the metals analyte list.
2-31-DP-17	10 - 14	✓ •	✓ • ✓	✓ • ✓	✓ •		✓ •		Evaluate the soil to groundwater pathway for selected soil COCs from the metals analyte list and cyanide.
2-31-DP-18	10 - 14	✓ •		✓ • ✓					Evaluate the soil to groundwater pathway for selected soil COCs from the metals analyte list.
2-31-DP-19	10 - 14	✓ • ✓		✓✓ • ✓✓					Evaluate the soil to groundwater pathway for selected soil COCs from the metals analyte list.
2-31-DP-20	10 - 14	✓ •		✓ • ✓					Evaluate the soil to groundwater pathway for selected soil COCs from the metals analyte list.
2-31-DP-21	10 - 14	✓ •		✓ • ✓					Evaluate the soil to groundwater pathway for selected soil COCs from the metals analyte list.
2-31-DP-22	10 - 14	✓ •		✓ • ✓					Evaluate the soil to groundwater pathway for selected soil COCs from the metals analyte list.
2-31-DP-23	10 - 14	✓ •		✓ • ✓					Evaluate the soil to groundwater pathway for selected soil COCs from the metals analyte list.
2-31-DP-24	~~10 - 14~~ 12-16	✓ •		✓ • ✓	✓ •				Evaluate the soil to groundwater pathway for selected soil COCs from the metals analyte list and cyanide.
2-31-DP-25	10 - 14	✓ •		✓ • ✓	✓ •				Evaluate the soil to groundwater pathway for selected soil COCs from the metals analyte list and cyanide.
2-31-DP-26	10 - 14	✓ •		✓ • ✓					Evaluate the soil to groundwater pathway for selected soil COCs from the metals and VOC analyte lists.

9/21/09 1430
9/15/09 0840
9/10/09 1530
9/10/09 1445
9/10/09 1630
9/24/09 0845 (-0) 0855 (-1)
9/21/09 0749
9/15/09 1145
9/10/09 1315
9/15/09 1230
9/3/09 2140
9/9/09 1845
9/9/09 1715

BLUE = DUPLICATE
YELLOW = MS/MSD

Table 2-2
2-31 Area Proposed CMS Data Gaps Sampling
Boeing Plant 2

Location	Sample Interval (ft bgs)	Constituent Groups with 2-31 Area COCs in Groundwater					Other Constituent Groups		Rationale for Selection of Laboratory Analyses
		VOCs	SVOCs (cPAHs)	Dissolved Metals	Total and WAD Cyanide	TPH-G, TPH-Dx, TPH-O	PCBs	Redox Parameters	
GROUNDWATER SAMPLING SUMMARY									
Direct Push Locations									
2-31-DP-27	10 - 14	✓ •		✓ • ✓	✓ •				Evaluate the soil to groundwater pathway for selected soil COCs from the metals analyte list and cyanide.
2-31-DP-28	10 - 14	✓ •		✓ • ✓	✓ •		✓ •		Evaluate the soil to groundwater pathway for selected soil COCs from the metals and VOC analyte lists and cyanide and PCBs.
2-31-DP-29	10 - 14	✓ • VA		✓ • ✓	✓ •	✓ • ✓			Evaluate the soil to groundwater pathway for selected soil COCs from the metals analyte list and cyanide and TPH.
2-31-DP-30	10 - 14	✓ •		✓ • ✓			✓ •		Evaluate the soil to groundwater pathway for PCBs.
2-31-DP-31	10 - 14	✓ •		✓ • ✓			✓ •		Evaluate the soil to groundwater pathway for selected soil COCs from the VOC analyte list and PCBs.
2-31-DP-32	10 - 14	✓ •		✓ • ✓					Evaluate the soil to groundwater pathway for selected soil COCs from the VOC analyte list.
2-31-DP-33	10 - 14	✓ • ✓		✓ ✓ • ✓					Evaluate the soil to groundwater pathway for selected soil COCs from the VOC analyte list.
2-31-DP-34	10 - 14	✓ •		✓ • ✓					Evaluate the soil to groundwater pathway for selected soil COCs from the metals analyte list.
2-31-DP-35	~~10 - 14~~ 12-16	✓ •		✓ • ✓					Evaluate the soil to groundwater pathway for selected soil COCs from the metals analyte list.
2-31-DP-36	10 - 14	✓ • VA		✓ • ✓			✓ •		Evaluate the soil to groundwater pathway for selected soil COCs from the metals analyte list and PCBs.
2-31-DP-37	10 - 14	✓ •		✓ • ✓			✓ •		Evaluate the soil to groundwater pathway for selected soil COCs from the metals analyte list and PCBs.
2-31-DP-38	~~10 - 14~~ 12-16	✓ •	✓ • ✓	✓ • ✓			✓ •		Evaluate the soil to groundwater pathway for selected soil COCs from the metals analyte list and PCBs.
2-31-DP-39	10 - 14 40 - 44 C-level (top of silt) 68-72	✓ ✓ • ✓	✓ ✓ ✓ • ✓ ✓ ✓	✓ ✓ ✓ • ✓ ✓ ✓	✓ ✓ •	✓ ✓ ✓ • ✓ ✓ ✓	✓ ✓ • ✓	✓ ✓ • ✓	Evaluate the soil to groundwater pathway for selected soil COCs from the metals analyte list and PCBs. Evaluate the potential for chlorinated VOCs at depth. Match analyses for PL2-502A.

BLUE = DUPLICATE
YELLOW = MS/MSD

Table 2-2
2-31 Area Proposed CMS Data Gaps Sampling
Boeing Plant 2

Location	Sample Interval (ft bgs)	Constituent Groups with 2-31 Area COCs in Groundwater					Other Constituent Groups		Rationale for Selection of Laboratory Analyses
		VOCs	SVOCs (cPAHs)	Dissolved Metals	Total and WAD Cyanide	TPH-G, TPH-Dx, TPH-O	PCBs	Redox Parameters	
GROUNDWATER SAMPLING SUMMARY									
Direct Push Locations									
2-31-DP-40	10 - 14	✓ •	✓ • ✓	✓ • ✓					Constituent list to match groundwater list. Evaluate the soil to groundwater pathway for selected soil COCs from the metals analyte list.
2-31-DP-41	10 - 14	✓ •	✓ • ✓	✓ • ✓					Evaluate the soil to groundwater pathway for selected soil COCs from the metals and SVOC analyte lists.
2-31-DP-42	10 - 14	✓ ✓ •		✓ ✓ • ✓					Evaluate the soil to groundwater pathway for selected soil COCs from the metals analyte list.
2-31-DP-43	10 - 14	✓ •		✓ • ✓					Evaluate the soil to groundwater pathway for selected soil COCs from the VOC analyte list.
2-31-DP-44	10 - 14	✓ •		✓ • ✓			✓ •		Evaluate the soil to groundwater pathway for PCBs.
2-31-DP-45	10 - 14	✓ •		✓ • ✓			✓ •		Evaluate the soil to groundwater pathway for PCBs.
2-31-DP-46	10 - 14	✓ •		✓ ✓ •			✓ •		Evaluate the soil to groundwater pathway for PCBs.
2-31-DP-47	10 - 14	✓ •		✓ • ✓			✓ •		Evaluate the soil to groundwater pathway for PCBs.
2-31-DP-48	10 - 14	✓ •		✓ • ✓	✓ •				Evaluate the soil to groundwater pathway for selected soil COCs from the metals analyte list and cyanide.
2-31-DP-49	10 - 14	✓ •		✓ • ✓	✓ •	✓ • ✓			Evaluate the soil to groundwater pathway for selected soil COCs from the metals analyte list and cyanide and TPH.
2-31-DP-50	10 - 14	✓ •		✓ • ✓			✓ •		Evaluate the soil to groundwater pathway for PCBs.

Notes:

NA	Not applicable
PCBs	Polychlorinated biphenyls
SVOCs	Semivolatile organic compounds
TPH	Total petroleum hydrocarbon
VOCs	Volatile organic compounds
Note on sample intervals	For existing wells, sample interval is the installed screen interval. For new wells, sample interval is the planned approximate screened interval. For soil samples, sample interval is the planned sampling depth.

BLUE = DUPLICATE
YELLOW = MS/MSD

✓ * 15 Colocated samples (14)
◇ MS/MSDs (3x volume)

Table 2-2
2-31 Area Proposed CMS Data Gaps Sampling
Boeing Plant 2

Equip Blank
✓2-31-PL2-507C-01-W-3 @1050 8/24/09

✓2-31-DP-18-01-W-3 @1540 9/10/09

8/25/09 0948
0954
1001
1517
8/24/09 ~~1106, 1127~~
low recovery 8/24/09 1127
8/24/09 1137

4/16/09 0728
0730 (-04)
0737
0745

9/24/09 1005
1007
1018

~~9/1/09~~ 1507
9/1/09 1510, 1512 (4)
1515

8/31/09 1626
1630 + MS/MSD
1635

9/2/09 1453
1457
1500 1502

9/1/09 1956
1959
2004

9/3/09 1513
1516
1520

9/14/09 0746
0748
0749
0800

9/14/09 0827
0829
0834
0836

3
156

Location	Sample Interval (ft bgs)	Constituent Groups with 2-31 Area COCs in Soil: VOCs	SVOCs (cPAHs)	Total Metals	Total Cyanide	TPH-G, TPH-Dx, TPH-O	PCBs	Other: TOC	Rationale for Selection of Laboratory Analyses
	MS/MSDs on	8	1/1✓	8	3	1/1	SOIL SAMPLING SUMMARY		
New Wells		111 ++++		++++ 11	111	1	1 2		
PL2-507B	0 to 1 4 to 5 9 to 10	✓ ✓ • ✓	✓ ✓ • ✓	✓ ✓ • ✓	✓ ✓ • ✓		✓ ✓ • ✓		Constituent list to match groundwater at PL2-507A. Evaluate extent of selected soil COCs from the metals analyte list and PCBs.
PL2-507C	0 to 1 4 to 5 9 to 10	-◇ ~~◇~~ -◇ • -◇	✓ ✓ • ✓	✓ ✓ ✓ •	✓ ✓ • ✓		✓ ✓ •		Constituent list to match groundwater at PL2-507A. Evaluate extent of selected soil COCs from the metals analyte list and PCBs.
Direct Push Locations									
2-31-DP-01	* 0 to 1 4 to 5 9 to 10	✓ ✓ ✓ • ✓		✓ ✓ • ✓		✓ • ✓ ✓			Constituent list to match groundwater at this location. Evaluate extent of TPH in soil.
2-31-DP-02	0 to 1 4 to 5 9 to 10	✓ ✓ • ✓	✓ MS only ✓ • ◇ ✓	✓ ✓ • ✓	✓ ✓ • ✓ W ◇	✓ ✓ • ✓			Constituent list to match groundwater at this location.
2-31-DP-03	0 to 1 * 4 to 5 9 to 10	✓ ✓ • ✓ ✓		✓ ✓ • ✓	✓ ✓ • ✓				Constituent list to match groundwater list at this location. Evaluate extent of selected soil COCs from the metals analyte list. Verify cyanide non-detect associated with elevated RLs.
2-31-DP-04	0 to 1 < 4 to 5 9 to 10	✓ ✓ • ◇ ✓		✓ ✓ • ✓	✓ ✓ • ✓				Constituent list to match groundwater at this location.
2-31-DP-05	0 to 1 4 to 5 * 9 to 10	✓ ✓ • ✓ ✓		✓ ✓ • ✓	✓ ✓ • ✓		✓ ✓ •		Constituent list to match groundwater at this location. Verify PCB non-detect associated with elevated RLs.
2-31-DP-06	0 to 1 4 to 5 9 to 10	✓ ✓ • ✓ ◇ ✓		✓ ✓ • ◇ ✓ ✓	✓ ✓ •				Constituent list to match groundwater at this location.
2-31-DP-07	0 to 1 4 to 5 9 to 10	✓ ✓ • ✓		✓ ✓ ◇ ✓ • ✓	✓ ✓ •				Constituent list to match groundwater at this location.
2-31-DP-08	* 0 to 1 4 to 5 9 to 10	✓ ✓ ✓ • ✓		✓ ✓ •			✓ ✓ •		Constituent list to match groundwater at this location.
2-31-DP-09	0 to 1 4 to 5 * 9 to 10	✓ ✓ • ✓ ✓		✓ ✓ •					Constituent list to match groundwater at this location.

Table 2-2
2-31 Area Proposed CMS Data Gaps Sampling
Boeing Plant 2

Location	Sample Interval (ft bgs)	Constituent Groups with 2-31 Area COCs in Soil						Other	Rationale for Selection of Laboratory Analyses
		VOCs	SVOCs (cPAHs)	Total Metals	Cyanide	TPH-G, TPH-Dx, TPH-O	PCBs	TOC	
SOIL SAMPLING SUMMARY									
Direct Push Locations									
2-31-DP-10	0 to 1 4 to 5 9 to 10	•		•					Constituent list to match groundwater at this location.
2-31-DP-11	0 to 1 4 to 5 9 to 10	•		•					Constituent list to match groundwater at this location.
2-31-DP-12	0 to 1 4 to 5 9 to 10	•		•	not filled, limited vol		submit		Constituent list to match groundwater at this location.
2-31-DP-13	0 to 1 4 to 5 9 to 10	•	•	•	•		•		Constituent list to match groundwater list at this location. Evaluate extent of selected soil COCs from the SVOC analyte list and cyanide and PCBs.
2-31-DP-14	0 to 1 4 to 5 9 to 10	•	•	•	•		•		Constituent list to match groundwater list at this location. Evaluate extent of selected soil COCs from the SVOC analyte list and cyanide and PCBs.
2-31-DP-15	9 to10 In Tunnel K	•		•			•		Verify PCB non-detect associated with elevated RLs. Placement of location is respective of building limitations and proximity of functioning professional office space. Groundwater will be sampled to support the pathway evaluation for silver.
2-31-DP-16	0 to 1 4 to 5 9 to 10	•		•					Constituent list to match groundwater list at this location. Evaluate extent of selected soil COCs from the metals analyte list.
2-31-DP-17	0 to 1 4 to 5 9 to 10	•	•	•	•		•		Constituent list to match groundwater list at this location. Evaluate extent of selected soil COCs from the metals analyte list and cyanide.
2-31-DP-18	0 to 1 4 to 5 9 to 10	•		•					Constituent list to match groundwater list at this location. Evaluate extent of selected soil COCs from the metals analyte list.
2-31-DP-19	0 to 1 4 to 5 9 to 10	•		•					Constituent list to match groundwater list at this location. Evaluate extent of selected soil COCs from the metals analyte list. ON HOLD, refusal @ ~6ft w/ pea gravel Cancelled
2-31-DP-20	0 to 1 4 to 5 9 to 10	•		•					Constituent list to match groundwater list at this location. Evaluate extent of selected soil COCs from the metals analyte list.

Handwritten margin notes:
- DP-10: 9/11/09 0912, 0914, 0928
- DP-11: 9/2/09 1840, 1843, 1844, 1849
- DP-12: 9/11/09 0754, 0800, 0815
- DP-13: 9/21/09 1334, 1336, 1337, 1342
- DP-14: 9/21/09 1412, 1414, 1422
- DP-15: 9/15/09 0701
- DP-16: 9/10/09 1456, 1458, 1512
- DP-17: 9/10/09 1412, 1424, 1432
- DP-18: 9/10/09 1556, 1610, 1614(-4), 1626
- DP-19: 9/21/09 748, 750 cancelled; 9/24/09 0752, 0754, 0759
- DP-20: 9/21/09 0708, 0711(-4), 0709, 0725

Table 2-2
2-31 Area Proposed CMS Data Gaps Sampling
Boeing Plant 2

Location	Sample Interval (ft bgs)	Constituent Groups with 2-31 Area COCs in Soil						Other	Rationale for Selection of Laboratory Analyses
		VOCs	SVOCs (cPAHs)	Total Metals	Cyanide	TPH-G, TPH-Dx, TPH-O	PCBs	TOC	
SOIL SAMPLING SUMMARY									
Direct Push Locations									
2-31-DP-21	0 to 1 4 to 5 9 to 10	✓ ✓• ✓		✓ ✓ • ✓					Constituent list to match groundwater list at this location. Evaluate extent of selected soil COCs from the metals analyte list.
2-31-DP-22	0 to 1 4 to 5 9 to 10	✓ ✓• ✓		✓✓✓ ✓• ✓					Constituent list to match groundwater list at this location. Evaluate extent of selected soil COCs from the metals analyte list.
2-31-DP-23	0 to 1 4 to 5 ~~9~~ to 10	✓ ✓• ✓ ✓		✓ ✓• ✓					Constituent list to match groundwater list at this location. Evaluate extent of selected soil COCs from the metals analyte list.
2-31-DP-24	0 to 1 4 to 5 9 to 10	✓ ✓• ✓		✓ • ✓	✓ • ✓				Constituent list to match groundwater list at this location. Evaluate extent of selected soil COCs from the metals analyte list. Verify cyanide non-detect associate with elevated RLs.
2-31-DP-25	0 to 1 4 to 5 9 to 10	✓ ✓• ✓		✓ ✓• ✓	✓ ✓• ✓				Constituent list to match groundwater list at this location. Verify cyanide non-detect associated with elevated RLs.
2-31-DP-26	~~9~~ 0 to 1 4 to 5 9 to 10	✓ ✓ ✓• ✓		✓ ✓•					Evaluate extent of selected soil COCs from the VOC analyte list. Placement of location is respective of building limitations and proximity of functioning professional office space.
2-31-DP-27	0 to 1 4 to 5 9 to 10	✓ ✓• ✓		✓ ✓• ✓	✓ ✓• ✓				Constituent list to match groundwater list at this location. Evaluate extent of selected soil COCs from the metals analyte list. Verify cyanide non-detect associated with elevated RLs.
2-31-DP-28	0 to 1 4 to 5 9 to 10	✓ ✓• ✓		✓ ✓ •✓ ✓	✓ ✓• ✓		✓ ✓ ✓•		Constituent list to match groundwater list at this location. Evaluate extent of selected soil COCs from the metals analyte list. Verify cyanide and PCB non-detect associated with elevated RLs.
2-31-DP-29	0 to 1 4 to 5 9 to 10	✓ ✓• ✓		✓ ✓• ✓	✓ ✓• ✓	✓ ✓ ✓ ✓• ✓			Constituent list to match groundwater list at this location. Verify cyanide non-detect associated with elevated RLs. Evaluate extent of TPH in soil.
2-31-DP-30	9 to10 In Tunnel K	✓•		✓•			✓•		Verify PCB non-detect associated with elevated RLs. Placement of location is respective of building limitations and proximity of functioning professional office space. Groundwater will be sampled to support the pathway evaluation for silver.
2-31-DP-31	~~9~~ 0 to 1 4 to 5 9 to 10	✓ ✓ ✓• ✓		✓ ✓•			✓ ✓• ✓		Verify PCB non-detect associated with elevated RLs.

9/15/09 1100, 1104, 1110
9/10/09 1232, 1234, 1240
9/15/09 1133, 1137, 1142, 1145(-4)
9/3/09 2030, 2031, 2035
9/9/09 1720, 1728, 1742
9/9/09 1552, 1554(-4), 1600, 1615
9/15/09 0922, 0929, 0937
~~8/31/09~~ 1547
9/1/09 1551, 1555
9/8/09 1623, 1628, 1640
9/15/09 0638
8/31/09 1858, 1900 (-4), 1902, 1906

Table 2-2
2-31 Area Proposed CMS Data Gaps Sampling
Boeing Plant 2

Location	Sample Interval (ft bgs)	Constituent Groups with 2-31 Area COCs in Soil						Other	Rationale for Selection of Laboratory Analyses
		VOCs	SVOCs (cPAHs)	Total Metals	Cyanide	TPH-G, TPH-Dx, TPH-O	PCBs	TOC	
SOIL SAMPLING SUMMARY									
Direct Push Locations									
2-31-DP-32	0 to 1 4 to 5 9 to 10	✓ ✓ ✓		✓ ✓ ✓					Evaluate extent of selected soil COCs from the VOC analyte list.
2-31-DP-33	0 to 1 4 to 5 9 to 10	✓ ✓ ✓		✓ ✓ ✓					Evaluate extent of selected soil COCs from the VOC analyte list.
2-31-DP-34	0 to 1 4 to 5 9 to 10	✓ ✓ ✓		✓ ✓ ✓					Constituent list to match groundwater list at this location. Evaluate extent of selected soil COCs from the metals analyte list.
2-31-DP-35	0 to 1 4 to 5 9 to 10	✓ ✓ ✓		✓ ✓ ✓					Constituent list to match groundwater list at this location. Evaluate extent of selected soil COCs from the metals analyte list.
2-31-DP-36	0 to 1 4 to 5 9 to 10	✓ ✓ ✓		✓ ✓ ✓			✓ ✓ ✓		Constituent list to match groundwater list at this location. Evaluate extent of selected soil COCs from the metals analyte list and PCBs.
2-31-DP-37	0 to 1 4 to 5 9 to 10	✓ ✓ ✓		✓ ✓ ✓			✓ ✓		Constituent list to match groundwater list at this location. Evaluate extent of selected soil COCs from the metals analyte list and PCBs.
2-31-DP-38	0 to 1 4 to 5 9 to 10	✓ ✓ ✓	✓ ✓	✓ ✓ ✓			✓ ✓		Constituent list to match groundwater list at this location. Evaluate extent of selected soil COCs from the metals analyte list and PCBs.
2-31-DP-39	0 to 1 4 to 5 ~~9~~ to 10	✓ ✓ ✓	✓ ✓	✓ ✓ ✓	✓ ✓	✓ ✓ ✓	✓ ✓		Constituent list to match groundwater list at this location. Evaluate extent of selected soil COCs from the metals analyte list and PCBs.
2-31-DP-40	0 to 1 4 to 5 9 to 10	✓ ✓ ✓	✓ ✓ ✓	✓ ✓ ✓					Constituent list to match groundwater list at this location. Evaluate extent of selected soil COCs from the metals and SVOC analyte lists.
2-31-DP-41	0 to 1 4 to 5 9 to 10	✓ ✓ ✓	✓ ✓ ✓	✓ ✓ ✓					Constituent list to match groundwater list at this location. Evaluate extent of selected soil COCs from the metals and SVOC analyte lists.
2-31-DP-42	0 to 1 4 to 5 9 to 10	✓ ✓ ✓	✓	✓ ✓ ✓					Constituent list to match groundwater list at this location. Evaluate extent of selected soil COCs from the metals analyte list.

8/31/09 1743
1745
1748
8/31/09 1526
1530
1535
9/2/09 1528
1530, 1532
1535
9/8/09 1822
1824
1829
9/1/09 2032
2034
2041
9/15/09 1748
1751
1758
9/3/09 1539
1543
1547
9/16/09 912
924
937
939 (-4)
9/2/09 1915
1919
1926
9/8/09 1949
1951
1955
9/14/09 0901
0903
0906

Table 2-2
2-31 Area Proposed CMS Data Gaps Sampling
Boeing Plant 2

Location	Sample Interval (ft bgs)	Constituent Groups with 2-31 Area COCs in Soil: VOCs	SVOCs (cPAHs)	Total Metals	Cyanide	TPH-G, TPH-Dx, TPH-O	PCBs	Other: TOC	Rationale for Selection of Laboratory Analyses
SOIL SAMPLING SUMMARY									
Direct Push Locations									
2-31-DP-43	0 to 1 4 to 5 9 to 10	✓ ✓ ✓		✓ ✓ ✓					Evaluate extent of selected soil COCs from the VOC analyte list.
2-31-DP-44	0 to 1 4 to 5 9 to 10	✓ ✓ ✓		✓ ✓ ✓			✓ ✓ X		Evaluate extent of PCBs in soil. Samples on hold. Retry for 3rd time. cancelled
2-31-DP-45	0 to 1 4 to 5 9 to 10	✓ ✓ ✓		✓ ✓ ✓			✓ ✓ ✓		Evaluate extent of PCBs in soil.
2-31-DP-46	0 to 1 4 to 5 9 to 10	✓ ✓ ✓		✓ ✓ ✓			✓ ✓ ✓		Evaluate extent of PCBs in soil.
2-31-DP-47	~~0~~ to 1 4 to 5 9 to 10	✓ ✓ ✓		✓ ✓ ✓			✓ ✓ ✓		Verify PCB non-detect associated with elevated RLs. Placement of location is respective of building limitations and proximity of functioning professional office space. Groundwater will be sampled to support the pathway evaluation for silver.
2-31-DP-48	0 to 1 4 to 5 9 to 10	✓ ✓ ✓		✓ ✓ ✓	✓ ✓ ✓				Constituent list to match groundwater list at this location. Evaluate extent of selected soil COCs from the metals analyte list. Verify cyanide non-detect associated with elevated RLs.
2-31-DP-49	0 to 1 4 to 5 9 to 10	✓ ✓ ✓		✓ ✓ ✓	✓ ✓ ✓	✓ ✓ ✓			Constituent list to match groundwater list at this location. Verify cyanide non-detect associated with elevated RLs. Evaluate extent of TPH in soil.
2-31-DP-50	0 to 1 4 to 5 9 to 10	✓ ✓ ✓		✓ ✓ ✓			✓ ✓ ✓		Verify PCB non-detect associated with elevated RLs.

9/18/09 2035, 2037, 2048
9/21/09 0528, 0530, 0535
9/15/09 522 cancel, 622 refusal@5ft
9/9/09 1908, 1910, 1922
9/9/09 1956, 1957, 2007
9/8/09 1439, 1442(-4), 1444, 1447
9/3/09 1932, 1934, 1946
9/8/09 1518, 1520, 1532
9/9/09 1355, 1357, 1406

Notes:

	Not applicable
PCBs	Polychlorinated biphenyls
SVOCs	Semivolatile organic compounds
TPH	Total petroleum hydrocarbon
VOCs	Volatile organic compounds
Note on sample intervals	For existing wells, sample interval is the installed screen interval. For new wells, sample interval is the planned approximate screened interval. For soil samples, sample interval is the planned sampling depth.

1 Wed 15,30,26,25
10 Th 20,18,19,16,17,22
7 F 42,10,(12)50.